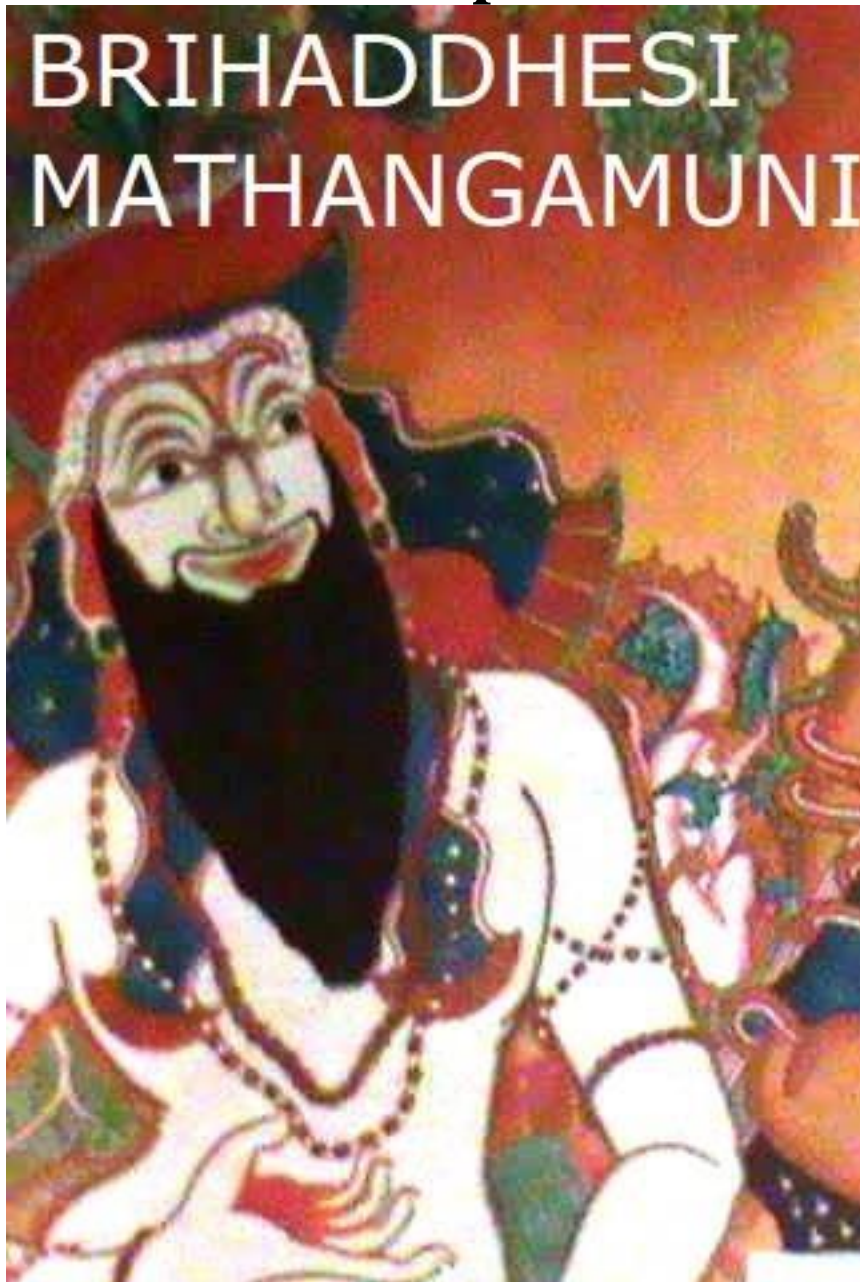


BRIHADHESI OF MATHANGAMUNI

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1 Desi prakaranam

Mathanga uvacha:

1.*Naanaavidheshu deseshu janthoonaam sukhado bhaveth*

Thatha:prabrithi lokaanaam narendraanaam yadrichayaa

2.*Dese pravritholasou Dwanirdeseethi samgnitha.:*

Mathangasya vacha:sruthwaa Naarado Munirabraveeth.

Mathanga said: Desi is that dwani which is produced in every desa(region)so that it gives happiness to all living things, all human beings and for kings alike.

Hearing words of Mathanga sage Narada asked :

Commentary: In the first verse itself Mathanga makes it very clear that the effect of music is for all living beings alike and no difference between ordinary people and kings or people who wield power . It is universal. Another feature he stresses is that the desi is that which is produced in all desa in all regions and the regional music is given importance for giving happiness to people of that particular region. Thus both universal and local features are shown here in Dwani which makes music.

Narada Uvacha:

3.*Nanu Dwanesthu desethwam katham jaatham Mahaamune*

Amoorthathwaacha thasyethi satyam na Vakthumarhasi.

Narada asked: Great Muni,Dwani is amoortha or formeless.Then how can it get a desithwa or a regionalism ?Tell me the truth of this .

Commentary: That which is formless is universal and the classical example is God. Then how can it become a personal or regional thing ,a personal God, or a regional music? Is not there a controversy in what you said ?

Dwani is like Brahman amoortha or formless .Then how can it become a personal God or a personalized regionalized music ?

Mathanga uvacha:

4.*Yathaa desaanubhoothathwaath dhwane:sthaanaanugathwatha:*

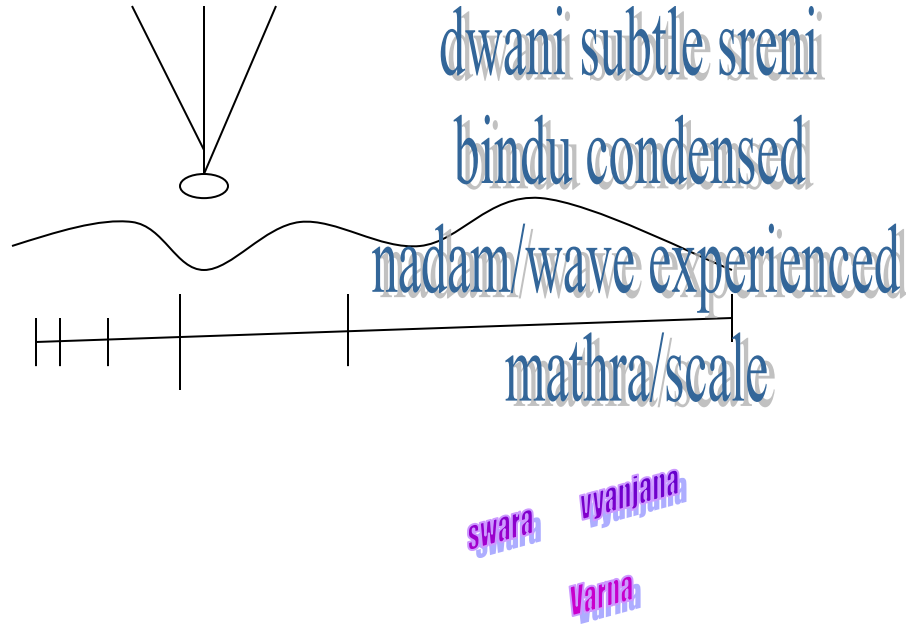
5.*Thatho Bindusthatho naadasthatho maathraasthwanukramaath.*

As it is experienced locally according to regional peculiarities and since it is due to the sthaana or position of body that we get the experience dwani is called regional or desi.And from that is formed Bindu or point and from bindu the naada and from naada the maathra or unit are produced in that order.

Commentary: Though dwani is universal it has to be experienced by a living being at a specific place where it lives. And it is experienced by a being due to its structure and function of body and mind and the position of dwani at a specific place in space-time .Thus just as God and Akasa (Brahmalinga is akaasa) are universal and formless , nameless Dwani also is formless, universal but just as God and Akasa it is experienced

individually in a limited space-time and body /mind. Thus it is universal but experienced regionally and called desi due to that experience. Thus it is the subjective experience which give it variety and differences.

How from dwani the bindu ,nada and mathra originate is described as in thanthric texts. The order is dwani--→ Bindu-→ Naaada →Maathra .



6.Varnaasthu mathrukodbhoothaa mathrukaa dwividhaa mathaa :
Swara-vyanjanaroopena jagajyothirihochyathe

It is from Mathruka ,we get varna.Mathruka are of 2 types.Swara and Vyanjana.These are considered as the light or jyothi of this world in this sasthra(science).

Commentary : Maathra or scale are of two types in any language .One is swara or vowels and the other is vyanjana or consonants. Both are lights of the world since they illuminate the world of consciousness by the process of education .The varna or colors or beauty of form we get from these two mathruka.Mathruka also means a model as well as a mother. The beauty and aesthetics, meanings of an uttered sound and the cognition of it gives colors to our thoughts,imagination,creativity etc .This is very important in making a form or structure of world in our minds .In fact our world view means our extent of such a visualization possible from what we have heard and learned .Thus varna and form come from mathruka.

The prapancha in Indian thought has naama and roopa while Brahman has neither. The Prapancha with name and form is the creation of mathruka/mother .The mathruka is in turn from the unmanifested dwani by a series of transformations experienced by each individual based on several modifying factors related to one's own environment.

7.Swaryathe desabaashaayaam kaadikshaantham yathaavithi
Thena swaraa: samaakhyaathaa anye shadjaadayaa:swaraa:

In local languages from ka to ksha all the consonants are uttered (swaryathe) with addition of vowels or swara. Therefore Swara is essential for all letters and is the life (uyir in Tamil). The swara in music is called Shadja etc. They are different from the swara or vowels of language.

Commentary: Swara is that which is uttered (swaryathe) or that which moves as the rays of the sun (Surya) and its soundwaves. Light and sound are always traveling together. This is experienced by anyone who dwells in a tropical region who is exposed to the lightening and thunderstorms which come with clockwork precision. Mathanga sitting on Sabarimala is no wonder an expert in science and art of sound and light. He distinguishes the term swara as used in language and music here. Because no confusion should occur in the student's heart about their identity. The swara in language are sakthi or power and is feminine.

8. *Vyanjanathwam thu sarveshu kaadivargeshu samsthitham*
Sakthyabhiviyakthimaathrena vyanjanam sivathaa gatham

The vyanjana or consonants are revealed (Vyanjanathwa=revelation power) but they can reveal themselves only when they join with sakthi of swara. Only when sakthi or swara join, a vyanjana or Shiva gets its revelation power.

Commentary: The sage now brings in a beautiful simile from thanthra. The vyanjana is Shiva but to reveal themselves they need their respective sakthi, the swara or vowel. Without shakthi, Shiva has no existence or power of revelation. The first sloka of soundaryalahari says this clearly. The comparison with dwani as Shiva and bindu as shivasakthi and varna as sakthi is a orderly descend of unmanifested to manifested creation.

Vyanjana is a word which means manifested. The manifested means it is not eka but many. The numerous. Whereas unmanifested may be either many or one. Vyanjana is always many. In shops when the shopkeepers says this is a shop which sells palavyanjanam, they mean different types of many substances.

9. *Padavakyaswaroopena vakyaarthavahanena yath*
Varnayanthi jagath sarvam then varnaa prakeerthithaa:

Varna is the akshara which by the forms like pada (word) vakya (sentence) as forms (swarupa) and by the meanings conveyed in them brightens up entire world and that is why it is given the name Varna. Without it we cannot know or experience this prapancha of our existence.

Varna is thus what gives us meanings in life, our perceptions of world and our personality and uniqueness and each one has a different view and each one is unique by the varna specific for each one. The innumerable varieties of living things and human beings with different world views is due to the varna differences in this sense. Varna for Indian does not mean the color of the skin. Varna is the colorful and manifold worldviews we create for ourselves with the world of letters/akshara and this differs depending on what we have learned and what our capacity is to learn too. And it depends on the desa on which we live. A person in tropical India naturally comes across its geographical features of biodiversity while one living in desert or in temperate climate has to get the knowledge of tropical weather and its immense possibilities with biodiversity and classification of

species etc from tropics alone. Not the vice versa. Thus varna and akshara and what it conveys in a geographic region differs from other regions widely .So is the pleasures one get from such varna and dwani in each locality.

Sl 10 *Varnapoorvakam ethadhi padam gneyam sadaa budhai:
Padaisthu nirmitham vakyam kriyaakaarakasamyutham*

Pada or word is always united with varnam. Therefore scholars say the word is with letters or aksharavarna. The sentence is a association of words which contains a verb and an adjective or adverb as a karaka.

Commentary: One may wonder why language is spoken about in a work on music. But it is essential for understanding music that one speaks of it in logical coherent terms. It is also important for production of sound ,whether music or word the same mechanism works .The vocal music of the land is a combination of sangeetha and sahitya which is the breast milk of Devi Saraswathy and no difference in aesthetic of both except that one is sweet to the core and the other has to be thought of to appreciate its beauty .That is the difference between our left and right brain functions and without function of both hemispheres a man cannot attain perfection.

11. *Thathovakyaan mahaavaakyam vedaa:saamghaa:hyanukramaath
Vyakthaasthe dwanitha:sarve thatho Gaandharvasambhava:*

From vakya was born Mahavakya (great sentences of Veda and Upanishads). By Mahavakya are formed the veda with the vedanga .They became manifested as dwani .From Veda originated Gandharva (Music).

Commentary : The further development of a world of letters by union of mahavakya is explained .The veda,vedanga and other forms of knowledge and human experience are from mahavakya of great minds .When an individual great mind perceive and experience veda and vedanga new manifestation of ancient dwani happen again and again in the universe in all times. That is why it is said they became manifested as Dwani. Dwani is ancient .It is recreated and manifested in great minds through mahavakya. It is from veda as sruthi, that music of the Gandharvas originated. Gandharva is a being associated with gandha (smell) and therefore of Vaayu(wind) and earth and is a link between the heaven and earth. Therefore ,Gandharva and his arts are links between heaven and earth giving ecstasy of heaven on earth .That is why arts are known as Gandharvavidya.

12 *Dwaniryoniparaa gneyaa dwani:sarvasya kaaranam
Aakraantham dhaninaa sarvam jagath sthaavarajamgamam*

Dwani is the yoni or womb of everything .It is the base or root of everything. All moving and nonmoving things in the cosmos are born from it .

Commentary: This is the most scientific knowledge since in the present world we know the nature of vibrations of sound waves .All objects-living and nonliving has vibratory energy of subatomic particles ,and it is the vibrations and its frequency which determine

the form,colour etc of everything in the cosmos. To find such a knowledge in a sage far off in time ,we have to appreciate the level of consciousness of ancients .

13.*Dwanisthu dwividha: proktho vyakthaavyaktha vibhaagatha:*

Varnopalambanaad vyaktho deseemukham upaagatha:

Ithi Desyutpathi:

Dwani is thus spoken of two types. One is avyaktha or unmanifested. The other is vyaktha or manifested. That which progress to varna as described earlier so that it become manifested ,is the cause or origin of the Desi music. Thus origin of desi from unmanifested .

Commentary: The origin of Desi which is associated with specific space-time and individualistic is thus from a timeless unmanifested ,through a series of stages in manifestation. Only when it is associated with varna or akshara and color ,it is manifests or experienced as desi and becomes subjective for each individual ,each society and for specific space times and limited by such boundaries .But in reality it is limitless, timeless and space less Brahman itself .Thus the origin of the many as desi from the one unmanifested truth is described .

2 .Desi-Margi lakshana.

14. *Abalaa baalagopaalai:Kshithipalair nijeschayaa*

Geeyatheyaanuraagena swadeshe desiruchyathe.

The people living in a local area like women,children,cowherds,and kings sing for their own pleasure and entertainment according to their liking (without following any rules) and with love and devotion .This style specific for each region is called Desi .

Commentary: This shows Desi is popular music sung by anyone and which is loved and followed by regional people and has subjective features and is unrestricted by any rules. The very fact that a child, cowherd and a woman can sing it as well as a king shows that the emotion of devotion and love and freedom of expression are the characteristic of desi .

15.*Nibadhaschaanibadhascha Margolayam dwividho matha:*

Aalaapaadinibadho ya: sa cha maarga :prakeerthitha:

Alaapaadiviheenasthu sa desi prakeerthitha:

Marga has two types .One is nibadha and the other anibadha.Marghi has rules like aalaap .If these are not there it becomes desi.

Commentary: The margi tradition always has some rules. Without rules it cannot be called margi. The Aalaap is a feature which is associated with margi .This is present in both North Indian and South Indian traditional classical music and therefore both are Margi. The 2 types of Margi as nibadha and anibadha therefore means South and North Indian music with alaapa ,but with less of other rules in North Indian than compared with South Indian. Whatever music is sung without such rules, and without Aalaapa comes under popular regional music or desi .

16.*Evam prakaaraa deseeyam gnaathavyaa Geethakovidai:
Evamethanmayaa proktham desyaa utpathilakshanam*

These are the lakshana of desi and its origin and I have summarized them following what is said about it by scholars of music .

Commentary: Mathanga says what he has just said is said by earlier scholars so that the system of music and raaga traditions are not starting with Mathanga but existed before him.

2.NADAPRAKARANAM

(Praise of Naada,Its origin,Lakshana,and different types of Naada)

17.*Idaaneem sampravakshyaami naadalakshanam uthamam*

Now I will tell you the lakshana (signs) of the naada which is Uthamam(best and great).

18.*Na naadena vinaa geetham na naadena vinaa swaraa:
Na naadena vinaa nritham thasmaad naadaathmakam jagath.*

There is no music without naada,and no swara without naada.There is no dance without naada.Therefore the entire universe/cosmos is Naada only .

Commentary: The ultimate source of language, dance ,arts and architecture and science is Naada and without Naada nothing exists for human beings to be proud of. Therefore the ultimate importance of naada is stressed.

19.*Naadaroopo smritho Brahmaa Naadaroopo Janardhana:
Naadaroopaa paraasakthir naadaroopo Maheswara:*

Brahma is remembered as Nada form. Janardhana(Vishnu)Maheswara(Shiva)and Parasakthi(Devi) are all form of Naada only .

Commentary: God is the form of Naada.This is the greatest advaita thought which is both artistic and scientific that has been produced in India right from vedic times. The Godhead can be worshipped according to each Individual's preference or according to each region's preferences ,just as Desi music is enjoyed by local people and it represents the popular mass liking/preference. But the source of all these forms is Naada and there the advaita of Godhead is science and art and philosophy integrated beautifully in an Advaita .

20. *Yaduktham Brahmana:sthaanam Brahmagranthischa ya:smritha:
 Thanmadhye samsthitha :praana:praanaad vahni samudgama:
 Vahnimaaruthasamyogaannaada:samupajaayathe
 Naadaaduthpathyathe bindurnaadaad sarvam cha vaangmayam
 Ithi kechith.
 Kandasthaana samutho hi sameera :samcharannadha:
 Urdhwam tha kuruthe sarvaa naadapadhathimudhathaam
 Ithyanye vadanthi
 Nakaara:praasa Ityaahurdakaaraschaanalo matha:
 Naadasya dwipadaartholayam sameechino mayoditha:*

From the center of Brahmasthanam or Brahmagranthi , the praana (which resides there) arise and from praana is fire originated. When marutha(prana)and fire combine ,naada is produced. From that bindu and the rest described earlier originate and therefore Naada is that from which all vaangmaya(all words/language/music and the like) are created. This is one view. Others have said that from the Kanda or root place(Mooladhara) awaken the prana and move both up and down and from this up and down movement of praana all naada is produced.

What I (Mathangamuni) think is that na denotes Praana (the last letter being na) and da denotes Agni or fire (da being the first word of dahana or digestive fire) and by joining of these 2 words we get Naada .

Commentary: Here two opinions given are actually two aspects of the same view and Mathanga is just integrating them. Both cosmic naada and the biological sound are explained by these views. The cosmic naada from space-time coming along with the winds and clouds and rains and recycling in upward and downward way producing the ecological cycles and creation of new life is there. But also the production of sound by a biological system like human being is mentioned. The arohana and avarohana of prana in our body starting from Mooladhara up and then downwards through our system is mentioned. At Manipoora ,this vayu meets agni (jadaragni) or digestive fire and this union produce the first sound and thus sound has its origin in Nabhi or center. From this center when it move up and reach the neck(visudhi) the unmanifested sound become manifested language or music or spoken word. The two processes are one since one is cosmic and the other is biological the proportion alone is different .The naadi in cosmic and biological planes are same and the movement also is same which we will see later .

21. *Naadolayam nadather dhaatho :sa cha panchavidho bhaveth
 Sookshmaschaivaathi sookshmascha vyaktholavyakthascha krithrima:*

From dhathu (elements) naada is produced. It is divided into five types. Sookshma (subtle), athisookshma(subtlest)vyaktha(manifested)avyaktha(unmanifested)and krithrima(artificial) are the five divisions.

Commentary: The dhathu or the five elements (panchabhootha) creating sound are of 5 types. The subtle,subtlest,manifested ,unmanifested and artificial are the 5 types and all these are in a human body as well as in an instrument

22. *Sookshmo naado guhavaasi hridaye chaathisookshmaka:
 Kantamadhye sthitho vyakthaschaavyakthasthaaludesake*

The subtle sound is in the Guha or cave .The subtlest is in the Hridaya or heartspace.That which is in the middle of neck is manifested.The unmanifested is in the palate .

Commentary: This part has to be explained. In veda and Upanishads we find Khahara and Dahara (Chidakasa and Hridakasa) as the guha or caves. Both are the places of origin of naada .Chidakasa or Khahara is the cosmic space-time and Dahara /Hridakasa is the biological space-time of an individual being. The sound in cosmic and biological cave is sookshma .In biological cave ,since it is a smaller cave than the cosmic cave ,the naada is athisookshma or very subtle .It is felt as subtlest by a biological being in regional space-time (for creation of desi music).This felt,unmanifested sound comes to the palate or thaalu and touches the 8 places and has to become manifested as sound for others to hear .Thus by the time it reaches the neck it has become manifested sound or Vaikhari .

23.*Krithrimo mukhadese thu gneya:panchavidho budhai:*

Ithi thaapanmayaa prokthaa naadothpathirmanoharaa:

The sound that arise just from mouth (the oral spoken language) is artificial .The five types of origin of naada is thus said beautifully.

Commentary: That sound which does not touch all these important points, that which does not originate in one's heart and cosmic awareness, and that which does not move in all the 8 positions and produce the beautiful movements and emotional content of a heart and awareness of a brain, but just gossips away as lip service is also naada or sound .But it is krithrima(artificial) . This is applicable to all time and to all people and to all regions .

3.SRUTHIPRAKARANA

24.*Idaaneem thu pravakshyaami srutheenaam cha vinischayam*

Susruvane chaasya dhaatho:kthin pratyayasamudbhava:

Sruthi sabda:prasadyolayam sabdagnai:karmasadhana:

Now I will tell what Sruthi is without a doubt.Sru is a term which denotes hearing/ listening. It is a dhathu from which the pratyaya Kthi is originated. That means according to scholars of sound sruthi is that which does the function of listening .

Commentary : Sruthi is a term used as synonym for Veda .It is also the most important factor associated with music. The function of listening is very important for learning of veda and music .Without sruthi one cannot learn either veda or music . The dhathu sru and the pratyaya kthi ,if added give us the word Srukthi ,from which the term Sukthi for pearl from a conch shell is derived. The conch shell is a symbol of sruthi in Indian tradition. The sound of pranava from a conch shell is inevitable for all temples and for rituals .Therefore the etymology of sound and listening is given in an ethno musicological perspective .This one can expect from Mathanga who lived in Sabarimala,the land of Kerala which is the coastline of India and aware of sankhu or conch shell and its qualities and importance .The vedic name sruthi and relation of it to music is also noteworthy showing the origin of music side by side with veda itself.

There are 10 anuchedas given for the 24th sloka which describe the sruthi or pitch well.

Anucheda 1: *Srooyatha ithi sruthi:*
Saa chai kaalanekaavaa
Thathraikeya sruthirithi
Thadyathaa-thathraadou
Thaavadhehaagni pavanasamyogaath
Purushaprayathnapreritho
Dwanirnaabheroordwamaakaasadesa
Kramaal dhoomavath
Sopaanapadakramena pavanechayaalanekathaalla-
Rohannantharbhoothapooranapratyayaarthathayaa
(chathu:)srutyadibhedabhinna:
Prathibhaasatha:
Ithi maamakeenam matham

That which is heard is sruthi. It could be one or many. One can describe it thus. When by the effort of human being the fire in his/her body unite with Pavana(vayu/air) and getting associated with the aakaasa above the nabhi(middle) position, arises up as if smoke in stages in a ladderlike way, depending upon movement of air 4 sruthi are made. By internal awareness of the process of filling of air, one can make such sruthi differences by own effort is what I say.

Commentary :Here Mathanga states his own opinion first before stating the opinions of others who lived before him. According to him a vocalist makes the different sruthi(sruthibheda) by conscious knowledge and control of his vaayu or air/prana on his bioenergy. He gives a beautiful simili of smoke rising in stages to sky from a fire. The biological fire of the vocalist is the fire here. His effort is the kindling of fire. The praana of the vocalist is the wind that takes the smoke up in a ladderlike stage wise pattern. Thus depending upon the effort and fire of vocalist he can rise and change the sruthi by knowing the praana power within him. How much he can control his voice and sruthi depends on how much he can control his own body fire, his own praana movement. A well controlled and well aware person can achieve this beautifully.
 Here Mathanga is speaking about 4 sruthi only in 4 ladderlike steps.(why it is so I will explain when we discuss Avarthaka with 8 kala or octave in another section). Now he speaks of the different opinions of the earlier musical experts who lived before him.

Anuchedam 2 *Anyethu punardwiprakaaraa:*
Sruthirmanyante katham?
Swaraantharaa vibhaagaath
Thathaa chaaha Viswaavasv :
Sravanendriya grahyathwaad
Dwanireva sruthirbhaveth
Saa chaikaalapi dwidaa
Gneyaa swaraanthara vibhaagatha:
Niyatha sruthi samsthaanaad
Geeyanthe saphageethishu
Thasmaad swaragathaa gneyaa:

Sruthaya:sruthivedibhi:
Antha:swaravivarthinyohi
Antharasruthayo mathaa:
Ethaasamapi chaiswaryam
Kriyaagraamavibhaagatha:

Others say there are two types of sruthi.How ? Swarasruthi and Antharasruthi .Viswavasu says as follows: Dwani itself is sruthi since it is grasped with ears .It is one but due to swaraanthara(difference in swara) it appears as two.In Geethi(music/songs)depending upon the 7 positions of sruthi from which they originate there are 7 swara .And based on this fact the scholars of sruthi say that sruthi are contained in swara.The sruthi which are heard in the interspace or intervals between swara is called antharasruthi.The importance of antharasruthi depends on the kriya(function)gramam(a sreni or series) and their differences.

Commentary: Swara and the anthara between swara is swaranthara .Take 4 sruthi and name them ,1 ,2,3,4That which is between 1 and 2 is swaranthara . That between 2 and 3 also is swaranthara .That between 3 and 4 is again swaranthara .So between 4 sruthi we have 3 swaranthara and the entire gamut makes 7 .Therefore ,when a person is using only 4 swaras ,for practical purposes he is actually using 7 ,but identifying only the 4 prominent ones. Take the Maghadhika of a desi/prakrith Raaga which is a swaranthara using only 4 swara .The classical example is that raaga to explain what Mathanga means by swaranthara and the 7 swara depending upon 7 sruthi positions .He says that the rule was first formulated by Viswavasu .According to Indian scriptures Viswavasu is one of the first Gandharvas who formulated the tradition of musical singing .This rule was known to Yajnavalkya ,the sage who was a member of the Mithila Parishad and a great scholar. In Brihadaranyaka Upanishad he speaks of this principle of dwani and sruthi and swara and the process of how the human ear captures only the prominent notes and misses the intermediate innumerable subtle notes when he explains the principle to his disciple and wife Maithreyi. (See Sudhasindhu .My commentary on Brihadaranyaka Upanishad) and Sankaracharya had commented upon it beautifully describing what we now call as Doppler's effect .That should be called Viswavasu's or Yajnavalkya's or Sankaracharya's effect –not of Doppler who had just rediscovered it .The function of innumerable antharasruthi depends on their position in the different graama (which was translated as gamut by the Europeans) .To that we will come soon.

Anuchedam 3:
Kechith sthaanathrayayogaath
Thrividhaam sruthim prapadyanthe
Aparethwindriyavaigunyaath
Thrividhaam sruthim manyanthe
Indriyavaigunyam cha thrividham
Sahajadoshajam abhighaathajam cheth

Some people decide that sruthi are 3 depending upon the 3 positions. Others say that due to blemishes of our senses the 3 types are produced. The blemish of senses are

sahaja(from birth /familial and congenital) doshajam(produced later on due to several aquired blemishes) or abhighaathajam(due to accidents) .By these changes in sense organs also the sruthi are transformed ,not only by the position of the body parts into swaritha,udatha,anudatha by experts

Commentary: Here the human voice producing the thristhayi is first mentioned. Then the reasons of individual differences in each of these positions by congenital ,aquired and accidental reasons are given and this shows the scientific way in which the sages were approaching the voice and sruthi production and its individual differences .The medical and anatomical knowledge is incorporated thus in musical traditions from the very beginning of Indian musical tradition.

Anucheda 4.

Apare thu vaathapithakaphasannipatha

Bhedabhinnaa chathurvidhaa sruthi

Prathipedire ,thathaa chaaha thumburu:

“Uchaistharo dhwani rooksho vigneeyo vaathajo budhai:

Gambheero ghanaleenasthu gnaathavya pithajo dwani:

Snigdhascha sukumarascha madhura:kaphajo dwani:

Thrayaanaam gunasamyuktho vigneeya :sannipaathaja:

Another set of scholars say that depending upon on

Vatha(air)pitha(acidic)kapha(mucous)and sannipatha(mixture of all these) sruthi can be of 4 types in individuals.Thumburu has said: The loud or thaara dhwani is called rooksha and it is due to Vaatha or air according to scholars. That which is deep and merged in ecstasy is due to pitha and that due to kapha is sweet and beautiful. The voice which is a combination of all these is having all these qualities .

Commentary: This is a quotation from an earlier authority to prove a point .What we call a reference from past science and scientists. A person can sing in the thaara or ucha (highest octave) if he has a prominent Vaatha (air) quality of voice. And can sing with deep sonorous ecstatic voice if he has optimum of pitha in his body and sweetly and beautifully if he has optimum of kapha.A good singer combines all the three in equal proportions and gets a quality voice that can sing both mandra and thaara and produce all emotions sweetly and beautifully. That is his/her range will be great .If there is an imbalance of these three the quality will be proportionately reduced in any of the 3 effects or in all if all are deranged. Thus Ayurveda scholars offer a good reason for the difference in voice and musical range depending upon the thridosha theory .

This is especially to be applicable to the larynx where voice production is effected by the singer .The nature of physical health and ratio of thriguna /thridosha is important for a good singer to maintain a good singing quality .

Anucheda 5.

Apare thu venuaadayo navadhaam sruthaam prathipadyanthe thathaa hi

“Dwisruthisthrisruthischaiva

Chathu:sruthika eva cha

Swaraprayoga:karthavyo

Vanes chidragatho budhai:

Bharathenaapyuktham
Dwikathrikachathushkaasthu
Gneyaaa vansagathaa:swaraa:
Ithi thaavanmayaa prokthaa:
Savansa sruthayo nava:

In a flute nine sruthi are adopted. When one puts holes in a bamboo flute it is done so that swara can be used in the order of 2,3, 4 .Bharathamuni has said: In a bamboo flute put holes in groups of one sruthi,2 sruthi ,4 sruthi .In this way in a flute 9 sruthi is made to happen .

Commentary:

$$2+3+4=9$$

Between the first 2 holes one sruthi .

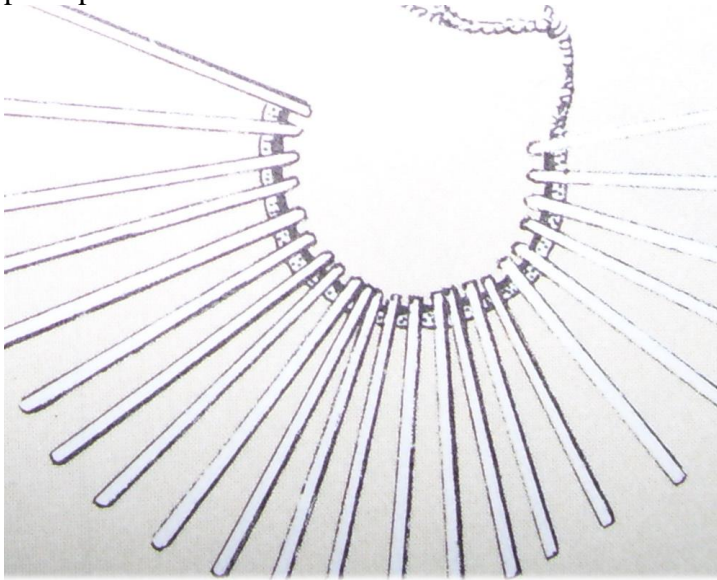
Between the next 3 holes 2 sruthi

Between the last 4 holes 3 sruthi

2 and 3 are one even and one odd number of the first series.4 is 2^2 and 9 is 3^2

The 3 groups of holes and the 6 antharasruthi makes 9 sruthi possible by closing and releasing the holes in succession.

The bone flutes early man used had all these subsequent stages of production and experimentation. The tribal people used to wear bone flutes on neck as a garland each having a different sruthi and played one by one in succession .The bone garland is shown below which incidentally shows 21 flutes each with a different sruthi showing even the early man was aware of the 22 sruthi and the antiquity of Melakarta Raaga and its principles.



Simple technique of wearing flutes with different sruthi on neck by early aborigines

Anucheda 6.

Thathra kechinmeemaasaamaamsalithadhiyo
Dheeraadwaavimsathisruthi srutheer manyanthe kechana
Puna:shatshastibhedabhinnaa:
Sruthaya ithi manyanthe, anye punaraanthyam
Varnayanthi srutheenaam
Thathaa chaaha kohala:
“Dwaa vimsathim kechidudaaharanthi
Sruthi:sruthignana vichaaaradakshaa:
Shatshashtibhinnaa:khalu
Kechid aasaamaanthyemanye prathipaadayanthi “.

Those scholars who have a fleshy or enriched intellect with meemaamsa (research/enquiry) depending upon their experiments and experience have known 22 sruthi .Others say there are 66 sruthi .And yet another maintain that sruthi are endless .Kohala has given his opinion thus: Scholars on sruthi say there are 22 sruthi. Others say sruthi are 66 and endless .”

Commentary: The number of sruthi had been identified as 22 even during the period of Brihadhesi and Natyasasthra .The 22 sruthi when they are in the 3 position(thristhaana make up $22 \times 3 = 66$ and therefore based on 22 sruthi and 3 positions is the view of 66 and it is not different from what is determined by the scholars of sruthi .The view that in between the 22 identifiable sruthi and their thrithaana as 66,there are innumerable subtle sruthi which are not identifiable by human ear ,is what Yajnavalkya and Viswavasus said earlier .The difference is only in identifiable and unidentifiable /manifested and unmanifested .Thus these views are essentially modifications on the first view only .

It is interesting that Mathanga takes the expert view of his son and successor Kohala as an expert on the subject of music .

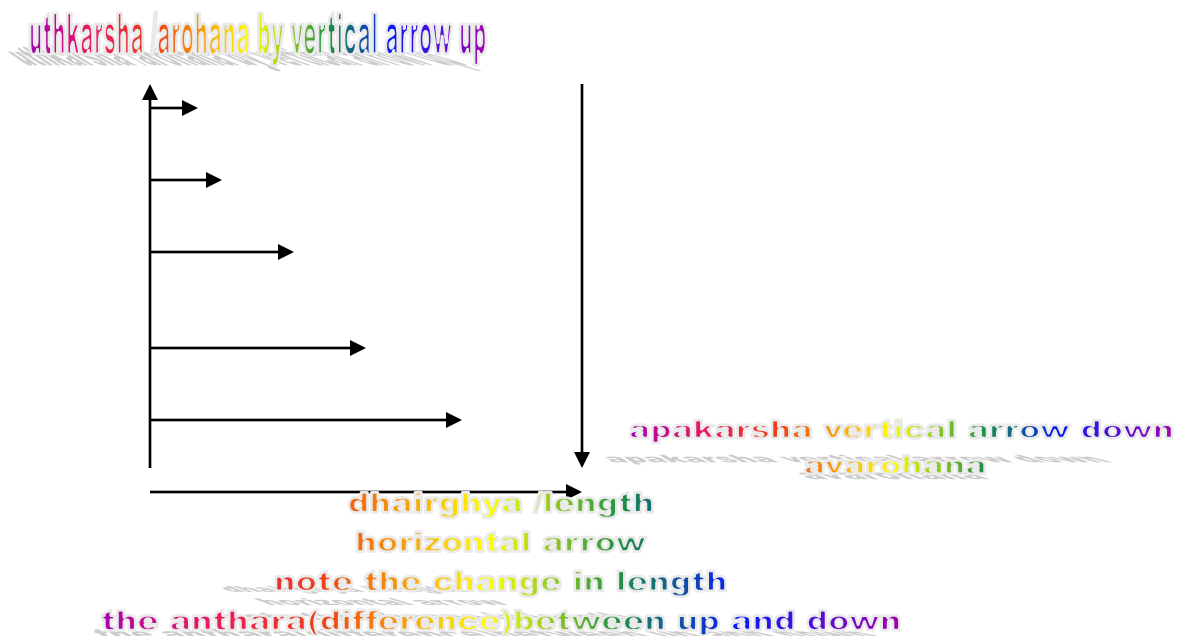
Anucheda 7

Nanu sruthe:kim maanam ? Uchyathe panchama-
(sthavad graamadwayastho loke prasidha ☺
Thasy asruthyuthkarshaapakarshaabhyaam maardhavaa-
Daayaathathwaadwaa yadantharam thath pramaanaa sruthirithi

When such is the case what is the measurement of the sruthy ?I will tell.Panchama functions in two graama (villages/gamuts) is famous.Dependent upon the high(uthkarsha)low(apakarsha) and the difference(anthara) between them ,the softness and length etc the sruthi is measured and determined. That is the pramana (proof) for sruthi measurement .

Commentary : Here the law of measuring and determining sruthi is explained by its basic characters.

This is part of a sinusoidal curve of what we call a Doppler effect now and what was the Viswavasus/yajnavalkya/Mathanga effect of India explained by Sankaracharya in Chandogya commentary and rediscovered by me in this century by chance .



Anuchedam 8

Idaaneem dwaavimsathiprakaarathaayaa

Nidarsana yathaadwe

Veene thulyapramaanathanthryupavaadana dandamoorchanaa same krithwaa

Shadjagraamaasrithe kaarye

Thayorantharasyaam madhyamagraamikeem sruthim krithww

Panchamasyaapakarshaath thaameva sruthim

Panchamavasaath shadjagraamikee kuryaath.

Ekasruthyapakrishtaa bhavathi

Param visheshalaabho naasthi,

Uchaneechamaathrapratheethe:

Punarapi thadwadevopakarshed

Yathaa gaandhaaraanishaadhou

Karthaarou punaranyatharasyaam

Sthiraveenaayam dhaivatharshabhou

Karmathaamaapannou pravekshyetha:

Visruthyabhyadhikathwaath

Punarapi thadwadevaapakrishtaaayaam

Chalaveenaayaam dhaivatharshabhou itharasyaam

Panchamashadjou pravekshatha:

Thrisruthyabhyadhikathwaath

Punarapi thadwadevaapakrishtaaayaam

Panchamamadhyashadjaa itharasyaam

Madhyamagandharanishaadaan

Pravisanthi chathu:sruthyabhydhikathwaath

One can give proof (nidarsana) for all the 22 sruthi .Take 2 veena having same measurement of strings. Fix strings at end of the danda (the axis of the Veenadanda) so that it is ready to produce a moorchana .Both veena should be tuned for Shadjagrama .In one veena make sruthi of Panchamagrama .For it ,one panchama has to be reduced by one place (apakarsha) or reduce sruthi in one veena.But there is no use with this .Because the only purpose served by this is that one student can cognize between the high sruthi and the low sruthi .Nothing more. In a similar way reduce Gandhara and Nishada .In one veena bring rishabha and dhaivatha.In a fixed veena(sthiraveena) since Gandhara and Nishada are prominent it has 2 sruthi above than rishabha and dhaivatha .(GA,NI,RI,DHA) .In a chalaveena (not fixed) when rishabha and dhaivatha are reduced ,in the other veena which is a sthiravena panchama and shadja will be raised .Thus there will be 3 sruthi.Again when we reduce sruthi in chalavena panchama,madhyama and shadja are naturally raised to madhyama,gandhara and Nishada in order .Thus a difference in 4 sruthi happen.

Commentary: This is a demonstration class for the students about how the sruthi are changed and how the mechanism of it functions and helps the student to identify the process of changing sruthi .The instruments being described in such a way as a teaching demonstration equipment shows the knowledge must have been thousands of years older than the time of Mathanga and his lifetime .Otherwise it would not have been so authentically used as a pramana for teaching sruthi .

Anuchedam 9

Evam anena nidarsanena dwavimsathi

Sruthayo bhavanthi

Evam madhyamagramo drashtavyam prastharoo yathaa

From this proof one can understand how the 22 sruthis are formed and determined.In the same way in Madhyamagrama also one can understand.

Anucheda 10

Chalaveenaayaa: prathamaapakarshe sruthilabho

Naasthi,dwittheeye chathu:sruthilaabha:

Thritheeye shadsruthilabha:chathurthe dwadasasruthilabha:

Evam dwavimsathi bhedabhinaa:sruthayo darsithaa:

In a chalaveena by the first reduction of sruthi there is no purpose served. By the second reduction, one gets 4 sruthi.By the third reduction one gets 6 sruthi .By 4th reduction one gets 12 sruthi .Thus the 22 sruthi are formed.

Commentary : By second reduction $2^2 = 4$

3rd reduction $2 \times 3 = 6$

4th reduction $2 \times 6 = 12$

Total $4 + 6 + 12 = 22$

22 being 2×11 the next prime is included here .

1st sarana =0

2nd sarana =chathusruthi

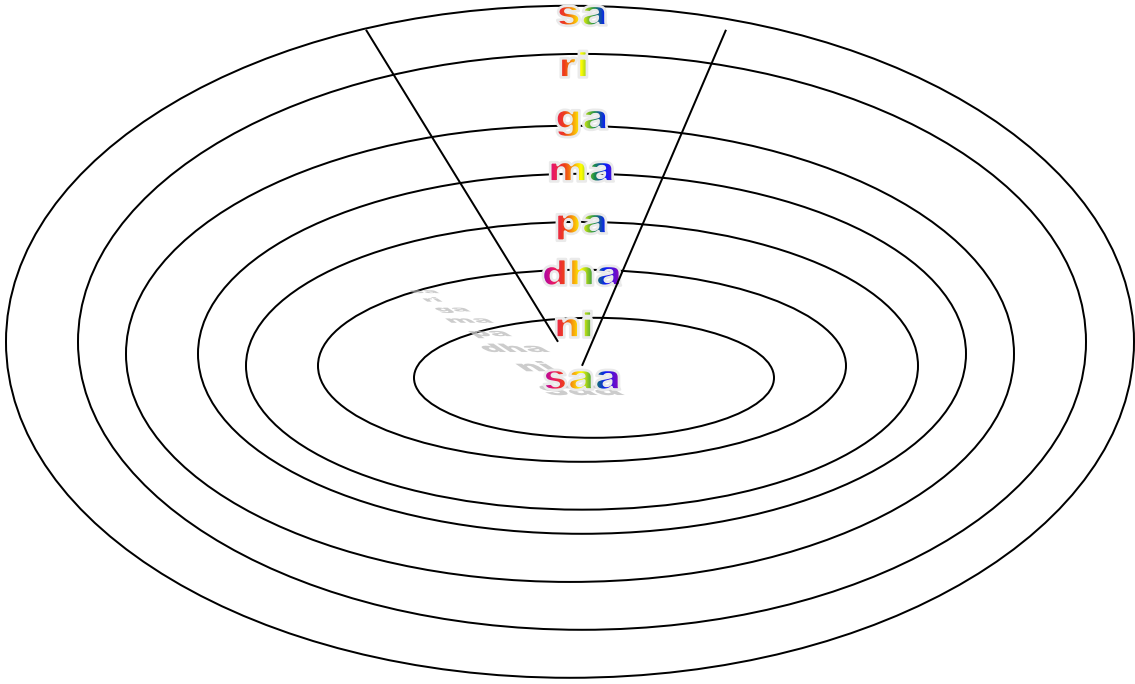
3rd sarana =shadsruthi

4th sarana =dwavimsathisruthi

Thus the 12 sruthisthana of 7 swara and the 22 sruthibheda are mathematically derived .This is then demonstrated by prasthaara (expansion) as shown below .

Sruthi	dhruvaveena	Chalaveena	Sarana 1	Sarana 2	Sarana 3	Sarana 4
1					Sa	
2				Saa		
3			Saa			Ri
4	Saa	Saa			Ri	
5				Ri		Ga
6			Ri		Ga	
7	Ri	Ri		Ga		
8			Ga			
9	Ga	Ga				Ma
10					Ma	
11				Ma		
12			Ma			
13	Maa	Maa				Pa
14					Pa	
15				Pa		
16			Pa			Dha
17	Paa	Paa			Dha	
18				Dha		Ni
19			Dha		Ni	
20	Dhaa	Dhaa		Ni		
21			Ni			
22	Ni	Ni				Sa

Note that the ascending and descending notes have a curve (the sinusoidal half) pattern at one end .So that the 7 swara will be in a cyclical pattern drawn as 7 cycles one within the other and the final saa(thara)is beyond the cycle in a three-dimensional way



This is how the Khandameruprasthara (one small part of a pyramid is expanded in mathematics of India and demonstrated through musical expansion of 7 swara (weekdays/ planetary orbits), 12 rasi/months/swarasthana and $7/22$ as the transcendental Pai or π paridhi of circles of Thaavaritha, Kaavaritha etc both in music, astronomy and maths .

Anucheda 11

Idaaneem shadshashti bhedabhinnaa:sruthaya:

Kathyanthe mandramadhyathaareshu ura:kanta

Sirasu thrishu sthaneshu pratyekam

Dwavimsathi prakaarathayaa bhidhyamaneshu

Now I will explain how the 22 sruthi are divided to 66. The sruthi at uras(chest) is mandra . That at kanta(neck) is Madhya(middle) and that at moordha (head) is thaara(high). Thus at the 3 positions of chest, neck and head the 22 sruthi assume different proportions thus producing 66 types of sruthi .

The prasthara we gave above is for a string instrument . It is now applied to a human body where voice is produced at three different positions. When one utters a sound at the lowest level mandra , it is at the low chakras from Mooladhara to nabhi and chest . Then the sound gets a manifested nature at neck where the organ of speech is situated . This is then sent above that level to produce thaara sruthi. Thus low, middle and high pitch in human body each position with 22 sruthi makes 66 sruthi possible by a human being .

Upto this the explanation of the first sloka and its demonstration was done by several anucheda by the sage so that the student has no doubt regarding what he is being taught. The principles of flute, veena and human voice (instruments where air column and string are used and human body /gathraveena) are here expounded stage by stage .

Sl 25. *Sruthayo hi shad shashti bhedabhinnaa bhavantheethi kechinmanyante.*

This is how the sruthi become 66 types in a human singer .

Sl 26.*Adhunaa srutheenaam aananthyam darsayaama:
Ananthyam thu srutheenaam cha darsyanthi vipaschitha:
Yathaa dhvani viseshenaam aananthyam gaganodare*

Now I will speak about the endless sruthi concept. The scholarly experts on music will demonstrate that the sruthi are endless. How ? The different dwani in the sky space or the womb of space-time is endless .

Commentary : Here the demonstration is by a proof from the sound waves produced in cosmic time space .There are endless sruthis in womb of space-time and that is not produced by a person living in a particular space-time limited by a janma .But there are experts who have become experts in Thrikaalagnana and they can demonstrate why and how the dwani of endless time cycles are experienced by a single person in a limited space-time and such people are once in a blue moon geniuses .Here music and human anatomy has nothing to offer but cosmic space-time and astrophysical acumen has much to offer .The cosmic and bioenergy are thus made into a single advaita.

Sl 27

*Uthaalapavanodwegejalaraasisamudbhava:
Kiyathya:prathipadyanthe na tharanga paramparaa:
Ithi srutheenaam aananthyam darsitham*

Another example given. Like innumerable waves are produced in an ocean when a wind blows and they are endless and countless ,sruthi are anantha or endless in space-time continuum .That is how one has to visualize the endlessness of sruthi

Sl 28.(*sruthiswarasambandham adhikritya panchavikalpaa:theshaam bhooshanam cha*)

*Idaaneem srutheenaam thadathmyaadi vikalpa:kathyathe-
Thadathmyam cha vivarthathwam karyathwam parinaamithaa
Abhivyanjakathaa chaapi srutheenaam parikathyathe
Idaaneem ethad eva vivrunothi*

(there are 5 differences of opinions about sruthi,swara and their relationships .)

Thadathmya or union or merging of the swara and sruthi as One.

Vivarthathwa or Swara is the mirror image of Sruthi .

Karyathwa. Swara is the karya or effect of sruthi

Parinamitha . Swara is the parinama of sruthi /or transformed sruthi

Abivyanjakatha.Swara is revealed or manifested in sruthi

These are the opinions or vikalpa regarding the relation of swara and sruthi .Now, I will explain each of these in detail .

Commentary : The nature and relation of sruthi and swara are now enumerated as 5 different opinions before dealing with them in detail ,as a good teacher.

Are swara and sruthi the same ?

Is swara the mirror image of sruthi ?

Is sruthi the cause and swara its effect and is there a cause-effect relation between them?
Is swara the transformed sruthi ?
Is swara depending on sruthi to get manifested ?

These are the 5 questions we are about to deal with. Remember these are the questions we deal with in philosophy regarding God and nature and its relationship .

Sl 29.

Viseshasparsasoonyathwaad sravanendriyagrahyayo:

Swarasruthyosthu thaadaathmyam jaathivyakthyorivaanayo:

The thadathmya is both have same class(jaathi) but with different vyakthi(individuality). Both are heard by ear and that is their similarity .The special touch is lacking is the difference .

Commentary: The first view that sruthi and swara are same is first explained. The advocates of this view say they are same since the organ of reception is the same .And hence both are of same class or genera (The term **jaathi** is used here for same class and it is not a caste). That which is perceived by the same organ of sense perception is classed as one .But sruthi and swara has an individuality, just as 2 human beings though they belong to same class of homosapiens has different characters which give them individuality. The specific touch of a swara and a sruthi are absent when they are perceived by same ear and perceived as same .Hence the perceived similarity is not due to similarity of sruthi and swara but due to nature of the perceiving organ. A perceiving organ that is trained to distinguish them will distinguish it but an ordinary ear will not (the individuality of a person who hear it). About this more is said in sloka 35.

Sl 30.

Naraanaam cha mukham yadwad darpane thu vivarthitha:

Prathibhaathi swarasthadwad sruthi vivarthitha:

The second view that the swara is seen as a mirror image in sruthi itself is then explained .commentary: Here the said similarity is an illusion as seen in a mirror .Hence vivarthavada is a view in which the oneness is explained as a maaya or

Mirrorimage / illusion

Sl 31 *Swaraanaam sruthikaryathwam ithi kechid vadanthi hi*

Mrithpindakaryathwam ghatasyeha yathaa bhaveth

The next view is that swara is the effect and sruthi is its cause. It is like saying that the clay is the cause of a pot.

Commentary: The clay here is compared to sruthi and pot to swara .As cause and effect theory

Sl 32.*Sruthaya:swararoopena parinamanthi na samsaya:*

Parinamedyathaa ksheeram dhadhiroopena sarvathaa

The view that swara are the transformed sruthi without a doubt ,is to say that as milk is transformed to whey and curd.

Commentary: The transformation of one thing to another involves a chemical change as in case of milk to curd with fermentation.The view of parinamasidhantha that sruthi transforms to swara is like that .This is an evolutionary theory of ancients.

Sl 33.*Shadjaadaya:swaraa:saptah vyajyanthe sruthibhi :sadaa*

Andhakaarasthithaa yadwath pradeepena ghataadayaa:

Theory of manifestation states that like a pot and other objects kept in darkness is made visible by a lamplight, sruthi makes swara visible.

Commentary: This view thus makes sruthi the light and swara the object kept in darkness as far as human intellect is concerned .

Sl 34. *Ithi Thaavanmayaa proktham srutheenaam cha vikalpanam*

Idaaneem sampravakshyaami vikalpasya cha dooshanam

I have now enumerated and explained the definition of each of these opinions about sruthi and swara and their relations .Now I will tell you the disadvantages and negations of these.

Commentary: The 5 views were present even before Matahnga's times and now after defining them Mathanga starts to speak of the inherent problems or negations of each of them .

Sl 35. *Bheda:swalakshanaanaam saamaanyenaanyavasthuvath sidha:*

Thadhi:viseshai:soonya bhavathi nabha :pushpasamkasam .

If one has a lakshana same as the other things ,then that with same signs cannot be distinguished is a statement like skyflower.

Commentary: The first view of thanmayatha is criticized. If both swara and sruthi has a special character and an individuality how can one say that they cannot be distinguished and are the same ? Is it not like saying that there is a flower in sky .The very statement is contrary to logic .They are thus not same, though apparently seem to be same by the receiving organ of individuals who are not attuned to them.

Sl 36. *Naanaabudhiprasaadhyathwaath swarasruthyosthu bhinnathaa*

Aasrayaasrayibhedaascha thaadaathmyam naivasidhyathi

Sruthi and swara can be distinguished separately and they are cognizable to intellect .They being distinguishable by intellect and by their nature of asrayi/asraya character (Co-ordinate nature) both are cognizable as separate and can never be same (thadathmya is thus negated)

Commentary: Both by intellect and by a trained sense organ one can recognize the difference and individuality of sruthi and swara and they can never be thought of as the same. Two co-ordinates are mutually dependent but are different and this is intellectually comprehensible and both can be distinguished too

Sl 37. *Yadabhaani vivarthathwam swaraanaam thadasangatham*

Vivarthathwe swaraanaam hi branthignanam prasajyathe

The argument that swara is the mirror-image of sruthi (Vivarta) is not logical. If we accept that view, then swara is only a branthignana(illusionary knowledge) .

Commentary: We know swara is not an illusion, but real. Therefore this view cannot be logically correct

Sl 38. *Karyakaaranabhaavanasthu swarasruthyornna sambhaveth*

Srutheenaamiha sadbhava pramaanam naiva vidyathe

It is difficult to establish the cause and effect relation of sruthi and swara. There is no proof to establish the sadbhava(truth) of the sruthi .

Commentary: The truth of sruthi is not established because of its subtle and unmanifested nature. Therefore the cause and effect relationship of sruthi and swara is also difficult to be established without a doubt.

Sl 39.*Arthapathyaa yadi vaa vyaapthigrahanapoorvaka pramaanabalaath*
Sidha:swarajanakaanaam gaganagunaanaam swaro bheda:

Arthapathi or evidence of vyapthigrahana ,if taken ,and if swara is considered as a quality of gagana(akaas a or sky) then one has to establish a cause and effect relation between the two .

Commentary : Arthapathy is a proof in which a circumstantial logical guess is made .And vyapthigrahana means the width and depth of cognition. These two are needed to know the quality of sound in space which is always unmanifested.And if we take swara as such a quality ,then we are dealing with a problem of swara as effect of sruthi that is the quality of akaasa which is unmanifested .

Sl 40.*Karyakaranabhedolasthi yadyapi sphutameva hi thathaapi*
Karanathwam cha srutheenaam naiva sambhaveth

The cause and effect are different and sruthi and swara are different .That is very clear .But we can not find a cause for sruthi

Commentary: Mathanga agrees that sruthi and swara are distinguishable and are different and both are truth .And also that sruthi is cause of swara .But he says one can find the cause of swara but not of sruthi.Sruthi is causeless and that is the difference between swara and sruthi.

Sl 41.*Karyeshu vidyamaneshu karanasyopalambanaath*
Ghataadou vidyamaane thu mrithpindo nopalabhyathe

Since the effect is there ,the cause also must be there and is cognizable .If the pot is there the clay also must be there.

Commentary: The existence of sruthi is thus established. It is not an illusory maaya or a mirror image but truth .And if swara is an effect and if it is established as truth, it naturally follows that its cause sruthi also is truth and is existent .If pot is truth so is clay ,its cause .Hence Sruthi though unmanifested or manifested has to be truth only .

Sl 42.*Parinaamolabhivakthishu*
Nyaayya:paksha:sathaam matha:
Thaadaathmyaadi vikalpanam

Those who are having a truthful mind(Sadaam mathi) cognize thus the transformation and the manifestation .Thus I have expounded the different views starting from Thadathmya(oneness)

Commentary: People who search for truth will find out it. They will know the difference between transformation of one to another and manifestation of one from unmanifested state as two different processes and will know how to distinguish them by the basic process itself. Manifestation of unmanifested dwani to sruthi and then transformation of it by a series of changes happening by different types of associations, permutations and combinations .

Anucheddam 12

Nanu srutheenaam dwavimsathi prakaarathaa

Yathadapyasamgatham srutheenaam

Srutyavayavaanaam chaanupalambhaath

Thaduktham-

Katham pratheethischa bhavedamushyaa

Naadou nabhou vyaakulitha sruthisyaath

Vedalakshyaavayavaa sruthisthu

Thenaive naivaavayavaa pratheethaa

Then the 22 forms of sruthi cannot be said. Since we are unable to get the sruthi as well as its parts .It is said: How is the feeling of sruthi happening ? Before the swara were created the aakaasa would not be having any tension/stress .Since sruthi has unrecognizable parts in it ,they does not make the feeling that they are made up of several series .

Commentary: The sruthi is real and is truth but its cause is unknown and its parts cannot be recognized and it itself is unmanifested.In such a state of affairs how do we experience it ? The same question is applied in Vedantha to Brahman.Here in Naadaantha it is applied to unmanifested sruthi state .We cannot see or know it and its parts yet we do experience it .God and aakasa are also having the same quality in Indian scripture.Brahman(God) has its linga (sign) in Aakasa (space-time continuum) and among the 5 elements aakasa has only one quality and that is sound.Akaasa is sound itself .Thus sound,spacetime as aakaasa and Brahman(God) are given the same qualities and grouped as a class with same properties and then identified as the same and not different from each other .Before prakrithi(cosmos) and swara were created the space-time from which it originated /the Brahman/the sound waves had no tension/stress/and were perfectly in shanthi/calm and no chaos and the moment the srishti or creation happen the vibrations or waves of sound appear and such a series of sounds is felt .Only when there is movement we feel it and when in perfect calm it is not felt .Thus the numerous parts/waves which we feel in different spaces and times as individuals is only an apparent thing and what is truth is the perfect calm before creation.

Thaa:sambhavantheethasthaa:syu:

Kiyathyo maathrukaa:prathi

Yadi dwavimsathisthaasaam

Vyaapaara:ka:kramothkramaath

Now, if we agree that the waves do exist separate from ocean, then comes the problem of counting them. How many of them do exist ? How many are related and associated with the Maathruka ? If it is agreed upon as 22 what is their order forward and in reverse order ?

Srutheenaam yadyaanantham cha vaalanivarya prasajyathe

Ekathwam vaa bhaveth thaasaam maathrukaanaamasamsayam

Maathrukaa eva no santhi katham thaasaam vikalpanam

If we agree the endless nature of sruthi, then we are also agreeing the ekathwa of them in ocean. Then the position of mathruka or models is doubtlessly to be accepted. Even Mathruka are not existent according to some. If so what is the use of the argument about their imaginary acceptance ?

*Sathi dharmini dharmaanaam sathethyaahurmaneeshina:
Dharmishwasatsu dharma no santheethyaahurmaneeshina:
Sathwaasathwe thadaa gunadoshaanaam guninaam yadaa.
Vinaiva kaaranam thaasthaa:
Swaranaam kaaranam yadi
Bhaveyu sruthayasthaasaam
Aadirneshyethakaaranam*

If there is a dharmi ,it should be doubtlessly having a dharma, according to intellectuals. If there is no dharmi, no dharma exists. Only when there is a Guni(one with qualities) exist the possibility of guna (qualities) and dosha(blemishes in that guna/imbalance of qualities) can be considered. If sruthi exists as a cause for swara ,and do not have a cause for itself (causeless) then there is no need to search for a cause for a causeless .Thus the causelessness of Brahman, sruthi as Naada is thought of .

The presence of cosmos and a jeeva in it is evidence for a dharma or law of its existence. Cosmos and jeeva as a guni /dharmi with qualities(guna) and dosha is experienced by us. Then its cause is the causeless root sruthi/Brahman/aakasa with naada as its guna which is causeless .The need for further search of a cause is unnecessary as well as impossible for a jeeva who is part of the universe with a cause and guna /dosha .It cannot go beyond that guna/dosha state but can experience that causeless one which was the cause of it. Thus the causeless is established as truth by experience and not by sensory or intellectual logical deductions.

*Kincha pramaanagamyathwe samelapi yadi maathrukaa:
Nihnothavyaasthadaa rakshaa srutheenaamapi durlabhaa*

More over, the proof of sruthi and mathruka is equivalent ,and therefore by proof itself one gets the possibility of cognition.Mathruka can function in a secret state unmanifested .Therefore sruthi also can do so .Or else one have to say that sruthi is nonexistent which is not true from experience .

Commentary:Thus mathra/models of measurement is considered as existent and equivalent to sruthi and the units of measurements as unmanifested functions is the same as sruthi.Mathhra is the wavelength and vibrations in a specific unit of time and hence sruthi is sound waves manifesting in a definite ratio and the equivalence of mathra /mathruka and sruthi shows this mathematical dimension of vibratory units in space-time as a proof for existence of Naada/and NaadaBrahman/God in Indian thought . Thus it has no contradiction with scientific truth.

Here we have to consider what mathruka means in language and in thanthra/manthra terminology and how it is related to mandala or field of astronomy/time space and to musical mandala .

In alphabets there are 16 swara (which is 4×4 and hence a chathushka or square number), followed by 25 vyanjana starting from ka (which again is a chathushka of 5×5) and then followed by ya,ra,la,va,sa',sha,sa,ha (8 letters) .

Adding 25 to 8 we get 33 mathruka or vyanjana which represents the 33 crores of divine Gods of Sanskrit. The 33 and 16 swara makes 49 letters which is again a chathushka of 7×7 and represents the 49 Praana or Maruths in the Veda cut by Indra's vajra and which circulates all over the worlds. In Dravida 2 more letters make up the 49 to 51 mathruka by which the body of Mother cosmos is made of. 49 vaayumarga in a human body ,in parallel to what is in the cosmic body of Mother, happen in the 6 chakra from mooladhara to agna and the 2 (ultimate union of Shivasakthy) in sahasrara includes all these .(Refer my commentary over Soundaryalahari of Sankaracharya and the bhashya of Bhaskararaya to Bhavana Upanishad for the details of how this Meruprasthara is the same in both).

The total number of vyanjana when the 2 from dravida is added is 35 and hence $35 + 16 = 51$. This represents the ayanamsa of cosmic cycles.

Assigning numbers to each of the letters the swara have a total of 16 only since each swara is assigned 1 .

The 25 vyanjana letters are numbered as 1,2,3,4, and 0 for each of the 5 groups .

Add each of these numbers we get $1+2+3+4+0=10$ and $10 \times 5 = 50$.

Ya,ra,la,va,sa',sha,sa,ha is assigned numbers 1 to 8 in order and adding them we get , $1+2+3+4+5+6+7+8= 36$. This again is a square of 6×6 .

Thus we have squares of 2 ,3,4,5,6, and 7 in these numbers .

Since the position of 10 with zero has occurred we can take 35 as 350 and add 16 swara to get 366 (which is the number of days in an year in oldest astronomical text of India Paithamahasidhantha) . Thus the astronomical mandala of timespace and the sound or naada/swarasruthimandala are same for Indian scientists . About this we will come across again several times .

Athrochyathe- Therefore it is said:

Sl 43. *Arthapathyaanumanena prathyakshagnaanatholapi vaa
Grihyanthe sruthayasthaavad swaraabhivyakthihethava:*

The sruthi which are said to be the cause of swara can be cognized by arthapathi(which is a decision based on a negative proof) by anumana (logical guess) and by pratyakshagnana (direct experience) . All these three are used to cognize sruthi/ soundwaves/ Brahman as Naada.

Mandalaprasthaarena srutheenaam nidarsanam

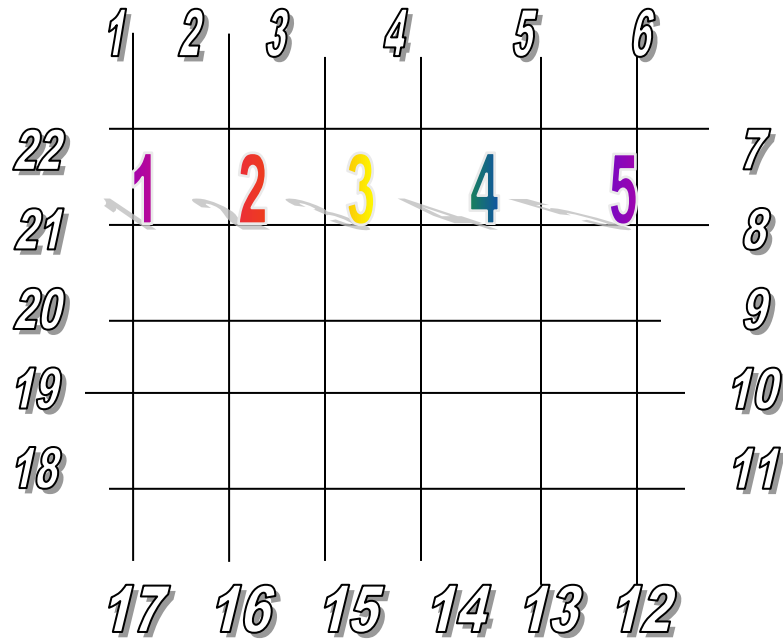
The proof of sruthi is from the prasthaara(expansion) of mandala(field) of energy . Thus the expanding field of energy is established by a Indian scientist . The mandala or field is

the expanding and contracting multidimensional figure of universe/cosmos as well as that of the field of sound in a raaga .

Anuchedam 13 .*Ethadeva spashtekaranaartham prastharena darsayaami*
Thathra kechid dandaprastharena .Darsayanthi dwavimsathi :
Sruthayo rekhaanaamithi.Anye thu venaa prasthaaramaahu:
Vayam punarmandalaprasthaaram brooma: thathaa hi
Thiryagurdhwam cha pancha shad rekhaa ityekaadasa.
Ubhayatho dwavimsathi :
Evam graama dwayepyupayoginya:sruthaya ithi darsithaa:

To make clear the relationship of sruthi and swara ,a mandala or field is studied which is an expanded form .The mandala can be represented as adandaprasthaara (by linear or sticklike expansion) in which 12 lines as the sruthi positions are drawn .The other representation is the expansion or prasthaara of the string as in veena where the 22 sruthi are shown instead of 12 .This method is called Mandalaprasthara or expanding field .(of energy).

Draw 5 lines horizontally on a paper and 6 vertically thus making a total of 11 lines and mark each ends of the lines so that we get 22 terminals for the mandala In two grama these 22 sruthi are then used



This can be constructed by poles or stones also (not on paper or floor).

Sl 44 *Thad yathaa- Thrisruthirathikramyaadou gneya:shadjaschathu:sruthi:*
Thadoordhwam dwe sruthisthyukththwaa thritheeyaa rishabho matha:

4 sruthi are generated by shadja .This happens when three sruthi are left out and the 4th is taken as shadja .After that 2 sruthi are omitted and the 3rd is marked as Rishabha .

Sl 45.*Thathaschaikaa sruthim thyakthwaa gandhaaro dwisruthi :smritha:*
Thadanu thrisruthisthyakthwaa karthavyo madhyamaswara:

Then leave one sruthi and mark the dwisruthi of Gandhara.(The large and small gandhara).Then leave 3 sruthi and mark Madhyama .

Sl 46 *Thadoordhwam panchama karya:parityajya sruthithrayam*
Sruthidwayam parityajye karthavyo dhaivathasthatha:

Leave out 3 sruthi and create panchama.Then leave 2 sruthi and create dhaivatha.

Sl 47.*Ekaam srutheem parityajya nishaadasthadanantharam*
Shadjagraama samudbhootha uktholasou sruthimandala:
Thadyathaa shadjagraama sruthimandalam .

Leave out one sruthi and create Nishada.Thus a sruthimandala (field of pitch/sruthi as sound energy) is created from a shadjagrama (a gamut of shadja).

How is this drawn ?

ni			saa			ri
	1	2	3	4	5	
	2					
dha	3					gaa
	4					
	5					
	pa			maa		

Sl 48. *Idaaem sampravikshyaami madhyamasruthimandalam*
Gneyasthisrohyathikrama madhyamolayamchathu:sruthi:

Now I will explain the sruthimandala(field of sruthi) based on Madhyamagarma (the middle gamut).It is a chathusruthi which is formed by going beyond the thisram.

Commentary: The thisram means the third sruthi. Therefore the panchama must be beyond the third sruthi. This will be explained more in the next slokas.

Sl 49. *Sruthidwayakramathikramya thritheeyaa panchame bhaveth*

Thathasthisrohyathikramya chathurthee dhaivatho bhaveth

Panchama happen beyond the third sruthi. Then beyond the 4th sruthi dhaivatha happens.

Sl 50. *Gneyasthwekaamathikramya nishadasthu dwitheeyakaa*

Sruthithrayamathikramya thatha: shadjaschathurthikaa

Beyond one sruthi from that is nishada. Then after 3 sruthi the 4th becomes the shadja.

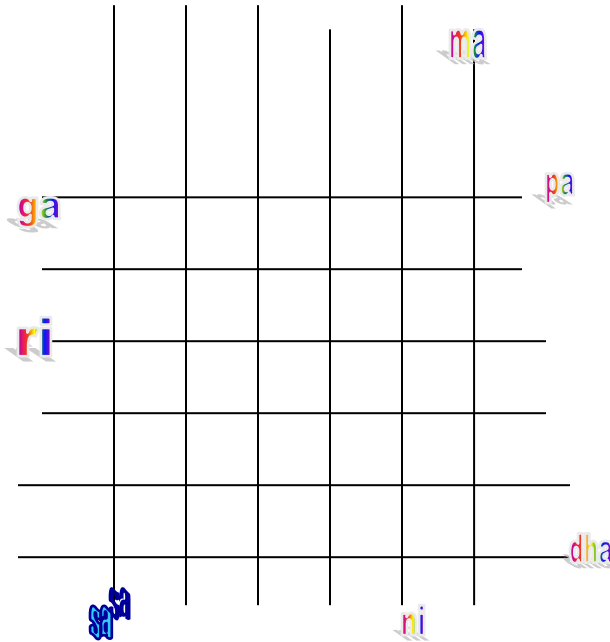
Sl 51. *Rishabhasthu dwayam thyakthwaa thritheeyaaparatho bhaveth*

Sruthimekaamathikramya gandhaara: syaad dwitheeyakaa

Thadyadhaa madhyamagrame sruthimandalam

2 sruthis are omitted and then rishabham is created. Leaving one sruthi create gandhara. This is the sruthimandala of madhyamagrama.

Commentary : The best way is to show it by a drawing as below.



Compare with shadjagrama for difference in position of swara in the gamut .From the original sa position of shadjagrama the third position is panchama in the madhyamagrama .In shadjagrama the distance from shadja to panchama is 15 .In Madhyamagrama the distance from panchama to shadja is 12 .

But if we take a reverse order ,in shadjagrama from panchama to shadja is 11 .Thus the mandala is not an equal mandala though it appears to be so .This is also the case with the astronomical calculations as I had already described.12 is a solar mandala and 15-16 is a

lunar mandala and a combination gives the sruthimandala of 27 nakshathra or stars which are taken as astronomical clock to which moon points as a needle at night for an observer on earth. The same principle is used in sruthimandala. The melakarta raaga scale thus incorporates a lunisolar mandala for earthly experiencers and in it is included all the other starry and planetary orbits too. Thus this is the real music of the spheres which Indians knew and experienced from saamaveda times at least and as said in Gita Saamaveda is Krishna /Vishnu himself .God is felt as music and sound waves by human beings and this is not myth but science is the message .

Anucheda 14. *Bharathasthu punar rishabhaadi sruthimandalam darsayathi. Kim athra kaaranam? Graamadwayelabhyantharamoorchanaaprathipaadanaartham*
Yadwaa graamadwayelapi shadjamadhyamaswarou
Graamanyou bhavatha: Anyaswaraasthadagresara: Ithi

Bharathamuni has shown a sruthimandala which starts from rishabhaswara. What is the reason for that ? It is said: In both grama(villages/gamuts) the internal moorchana or the Graamani (village chieftain) is created in the shadja and madhyama. The other swara are the tips (agresara) of these two swara .

Commentary : That is ,the 2 main chieftains of 2 gamuts are sa and ma. (Therefore shadja and madhyamagrama are given) .All the other swaras are depicted as the following swaras of these 2 at respective ends of pillars /lines as shown in figure. But one must remember that any swara can become a chieftain when necessity comes and have the potential to become a gramani at any time and create a new order. Thus Bharathamuni demonstrated a gamut where the starting point is rishabhaswara to demonstrate this point .By such a process one can create endless raaga is the importance of this rule.

Sl 52. *Ithi thaavanmayaa prokthaa :sruthayo: graamam aasrithaa:*

Thus I have explained the sruthi which depend upon grama(villages) or gamuts

Commentary: The grama is a village where a number of people live under a chieftain. Here 2 such grama with shadja and panchama as chieftains is described and a grama with rishabha as chieftain is described by Bharathamuni. The rule is the use of shadja and madhyama as two basic grama chieftains and then arrange other swaras in relation to them which is given by Mathanga here .The grama as groups of 7 swara and 22 sruthi as a basic rule and with shadja and panchama as fixed swara as chieftains of these 2 grama is the classical rule and by changing adharasruthi to any of these one can make all possible permutations and combinations mathematically and sing them too with showing that there are anantham /endless possibilities in Karnatic music and they were known to both Bharatha and Mathanga by this statement .

Ithi sruthiprakaranam .Thus ends the explanatory chapter on Sruthi.

4 swaraprakaranam

Sl 53 *Idaaneem sampravikshyaami swaraanaam cha vinischayam*
Thathraadou swarasabdasya vyuthpathiriha kathyathe

Now I will explain how the swara are decided /determined. First I will speak of the origin of the sabda/word swara .

Sl 54.*Rajya deepthaavithi dhaatho:swasabda:poorvakasya cha*
Swayam yo raajathe yasmaath thasmaadesha swara:smritha:

Raaj or Raajya is a word/dhaathu which means light/enlightened/reveal etc.To this dhathu the prefix swa is added to create a word swara.That which revels itself, or lights up itself/enlightens itself is swara .

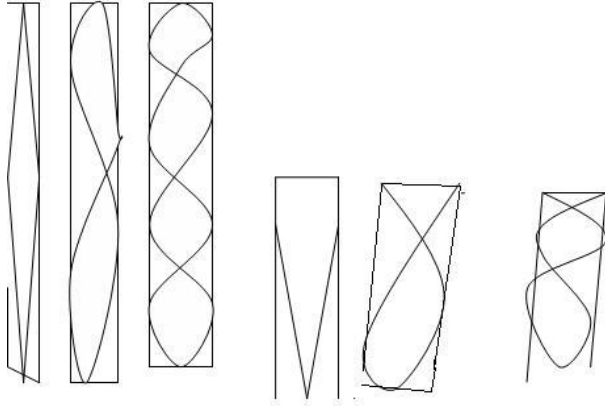
Commentary: A revelation/enlightenment of one's self happen through swara is implied by such a definition. A Yogi is an enlightened person. If a symbol of a yogi is seen in a archeological site in India it naturally denotes the presence of swara there. The Yogic seals of IVC/Harappa with sapthaswara seals showing 7 virgins and a Goddess (Saraswathy) with an Upasaka singing Hymns/saaman is thus indicative of the antiquity of knowledge of swara /language/literature and music in India .

Anucheda 15.*Nanu swara ithi kim ? Uchyathe-Raagajanako Dwani :*
Swara :ithi.Thathaa chaaha Kohala:-
Aathmechayaa maheethalaad vaayurudhyannidhaayathi.
Naadee bhithou thathaallakaase dhwani:
Raktha:swara:smritha:

Then what is the meaning of swara? I will tell yo.That dwani which produces Raaga is alled a swara.Kohala also says: By the selfwill,air/praanavaayu raises from a plane (earth's or from a person's lower parts of body) upwards and touches or clashes against the walls of naadi and then the echo of that is heard in aakasa(space within) and heard as swara.

Commentary: This is a very scientific explanation of swara and its production. A naadi is something with a cylindrical shape and a tubular structure with a space inside enclosed by a wall .This is present in our body as well as in the cosmic field is the concept of Indian scientists/artists. The word Raagajanaka is to be noted. The Janakaraaga (a name for Melakartha raaga is used here in reverse order)

□



Note the pressure waves producing nodes, antinodes and a spiral movement in a cylinder which represents a naadi and this is the sinusoidal patterns of sound produced.(These are figures seen in all Naaga worship shrines of India as representative of the Kundali power in the cosmic and human naadi).

Anucheda 16. *Nanu swara evam syaadekolaneko vaa
Vyaapakolavyaapako vaa nityolanityo vaa syaad.
Athrochyathe –ekolaneko vyapako nityaschedi .
Thathra nishkalaroopenaika:
Swara:shadjaadiroopenaaneke:swara:*

If swara is that ,then is it One or many ? Is it spreading everywhere or restricted to one place ? Is it eternal or temporary ? I will tell you. It is both One and many. It is spreading everywhere and is eternal .In its undivided state there exists only one swara and that is shadja.Thus ,you may get many swara.

Commentary: Here also the questions raised on swara and God are the same. First the existence is established. Then its nature is explored by a series of questions. Swara is existent and is truth and it is not illusory. Then ,one has to understand that it is both one and many .How is that ? In its primary undivided state it is always one. But in its evolved and divided state it appears as many .Thus one can see the One in the many. In other words though we find aneka(many) all are only the original One(Eka) .Because it is spreading everywhere and in everything ,it is omnipresent, omniscient it can be experienced everywhere and in every thing .Thus worship of the apparently many in India is actually the worship of the Eka or One .The advaita makes this possible .

*Thathaa chaaha Kohala:
Jaathibhaashaadisamyogaadanantha:keerthitha:swara:
Padairyukthasthwalamithi krithou yojyo raseshwapi Ithi
Nityolavinaasee vyaapaka:sarvagatha:thathaa chaaha Kohala:
“Urdhwanaadeepprayathnena sarvabhithinighattanaath
Moorchitho dhwaniraamoordhna:swarolasou vyaapaka:para:*

Kohala also said: By its association with Jaathi(class)and bhaasha(language) swara is endless or anantha.It is intertwined with pada(words)alankara(ornamentative decorations of language)and rasa (experience of bhava as emotions) etc.It is eternal ,cannot be destroyed ,and enters everything as spreading principle “

Kohala has also opined that : By the function of the upward Naadi ,by striking against the walls and by rubbing against the walls the swara can raise upto the top of head .Thus it spreads all and then goes beyond it (Atheetha).

Commentary: The jaathi or class here is not caste but the class of Raaga due to differences in genera.A class as humans produce a different type of sound from a class of cats or dogs .Thus Jaathi as a biological class or genera producing a potential for raaga is mentioned. The bhasha also is another difference between individuals of the same species. The homosapiens with their difference in uttering of words and styles of language makes differences (many ness) more and more pronounced .Thus endless swara are possible when we combine the great biodiversity (especially noticed in a tropical nation like India) and the multiple languages of the spoken type .Then in the written and spoken languages the various usages ,words with multiple meanings ,twists in words giving niruktha of different types and puns etc,the decorative usages of poetics, and finally the emotion that is evoked giving a particular bhava and rasa are all indicated when the many ness of swara are considered. Thus from an undivided Shadja the many swaras that emancipate spreads everywhere giving many types of raagaas and emotions evoked in them .The one then appears as many for the individualistic tastes of the entire creation and their needs .Thus the one-many problem of philosophy is solved with musical raaga and swara concepts. This is easy to understand for all people about the existence and nature of God .Even those without a scholarship in vedantha will feel the truth of God with Naadaantha .

The eternal swara is not destroyed since it is omnipresent and omniscient and exists in all times .Thus it is not Mritha but Amritha.

Another quote from Kohala gives how such a swara is produced in a singer's body .The Urdhwanadi or sushumna is mentioned .The 101 naadi in human body has 50 each on either side and 1 as central which is equivalent with sushumna into which all the other 100 join at various points. The respiratory tract as a column of air also function in the same way .When a singer does some effort to raise his praana up (alone Urdhwanadi as a yogin does) the kinetic energy of the upward motion of moving column is touching walls of the column (either as a thud when it strikes or just as a murmur when it rubs against) and in this way it raises upto the very top (as athithaara) and then it merge with cosmic naadi .Thus it spreads in entire body and is beyond the body too, extending to cosmic field. The bioenergy field thus merge with the cosmic energy field of the stars(Thaara also means a star) .This principle of chakra, and praana and cosmic fields of energy equivalence is used in Raagachikitsa and the basic is always the Melakartha or Raagajanaka(Janakaraaga) scale and its rendering for an expert musician.

The term Jaathibhasha used in the sloka: The Indian bhaasha or languages during Bharathamuni's time were

- **Aryabhaasha :** The systematic, refined ,grammatically correct language used for education of all citizens

- **Jaathibhaasha:** The common language or Loukikabhasha in which local people speak /talk .It need not have a dialect .
- **Vibhaasha :** The changes that happen in the local jaathibhaasha by differences in pronunciation of different individuals .The apabramsa of local jathibhasha happen by such wrongpronunciations made by ignorant people .This is prevented in the educational language by extreme care
- **Yonyantharabhasha:** The language and songs of birds and animals etc which we hear in different seasons and in different localities.
- **Athibhaasha:** This is a superhuman language like a computer language .The 10 naada hard by a yogin, revelations of great people ,direct experience of gnaana etc .The aksharasamkhya and kramapaata and the like in veda and the musical language using 7 swara,22 sruthi etc are examples .

Anuchedam: 17

*Nanu shadjaadeenaam katham swarathwam ?Vyanjanathwaacha
Yadi vyanjanaanaam swarathwam abhidheeyathe
Thadaaneem kaadeenaamevaasthu swarathwam.*

How does the shadja etc gets swarathwa ? Is it because they are having Vyanjanathwa ? Then Vyanjana like Ka also should get swarathwa.

Commentary: If sa,ri,ga,ma,pa,dha and ni as swara get their importance as swarathwa what is its reason? If we say that it is because of their Vyanjanathwa(or self revelation) then it wont be logical. Because there are other vyanjanas (consonants) like ka etc in language. They are not given the name swara but only these 7 are given that special name .So apart from their Vyanjanathwa which is common for all consonants there must be some other reason for designating these 7 consonants as swara .What is that ?

*Athrochyathe-Asaadhaaranathwaath
Shadjaadeenaameva swarathwam
Na kaadeenaamithi
Nanu shadjaadeenaam asaadharanathwam katham ?
Aapthopadesaath shadjaadeenaam asaadharanathwam.*

I will tell. It is because of its rarity or special and rare quality .That is not there for other consonants. How is the rarity and special quality of shadja etc determined ? By the advice of the previous scientists .

Commentary: The question of special quality of the 7 swara to be designated as such is now thought of. The reason for the special quality and selection of these 7 as swara is as advised and expounded by previous scholars who had lived before Mathanga .(Mathanga being a sage who lived in Sabarimala ,before Rama visited the place the time of these ancestors must be well beyond the Ramayana period).

*Thathaa chaha Kohale Maheswara:
Shadjam.Vadathi Mayoora Rishabham Chaathako vadeth
Ajaa vadathi Gandharam Krouncho vadathi madhyamam*

Pushpasadharane kale kokila:panchamam vadeth.Pravidkaale thu samprapthe dhaivatham darduro vadeth.
Sarvadhaa cha thathaa devi nishadam vadathe Gaja :
Yadhwa urdhwadhwani gamithwena shadjaadeenaam evaasaadhaaranathwam ithi,atahvaa
Shadjaadaya:swaraa na bhavanthi ,aakaaraadaya eva
Swaraa:shadjaadayasthu theshaam akaaraadeenaam ucharanartham ithi .

Maheswara has said in Kohalam.”Peacock utters shadjam.The bird called Chaathaka utters rishabha and goat utters gandhara .Krouncha is a bird that utters Madhyama.During spring season when flowers are everywhere the koil sings panchamaswara.During the rainy season the frogs produce dhaivatah .During all seasons the elephants produce Nishada.Hey,Devi,Shadja etc have this specialty due to their upward movement of dwani .In other words shadja etc are not swara,but the aakaara are swara.Shadja etc become swara when they are uttered with the aakaara swara etc .

Commentary:

The seasonal movement of the vaayuchakra /kaalachakra/seasons and the sounds heard by a person living in the tropical south India associated with these seasons is here mentioned. The quote is from a book Kohalam which is written by Kohalan ,son of mathanga ,and it is in the form of a conversation between Shiva and his consort Parvathy.Here Maheswara(Shiva) is telling Parvathi the answer to the question asked above.

Sa	Peacock/mayura
Ri	Rishabha /chaathaka
Ga	Aja /Goats
Ma	Krouncha
Pa	Kokila
Dha	Dardura/frogs
Ni	Gaja/elephants

(the a,aa,e,eee etc in one meaning.Aakaara also means form .Thus a double meaning). This association of seasons and kaalachakra,and the calls of nature goes back to the evolutionary stages of humanity living in a tropical forest and hence is the apthavakya (the ancestral experience of humanity) which is the beginning of learning of swara from nature. This is the specialty of shadja etc .Thus the anthropological and ethno musicological aspects of this statement is very clear .We find in Rig-Veda a praise of frogs by Vasishta (V11.103) as singers of saamagaana giving us cattle and increase of races by procreation(by rains and food that they fortell) and Fritz Stall has mentioned that Indians learned Saamaveda from Birds and animals from antiquity .If we find a form of animal like elephant or peacock or a syenasuparna on an Indus seal one has to think of the totem of that animal/bird as a swara as well .And if we consider the real a or e swara in the sa to ni 7 scales only aaaaa and eeeee are the swara used at end which are best suitable for aalaapaa which is a specialty in India .A is a letter that represents Vishnu/Purusha and eee is a letter which represents shakthi/Devi .

This actually tells us how early Indian man/ancestors created a athibhasha from a yonyantharabhasha of animals and birds in antiquity which is beyond all time scales and chronological assessment and that is the real asaadhaaranathwa or special character of these swara from other vyanjana .The revelation of music and swara and its mathematical precision from nature at a prehistoric anthropological antiquity in Tropical India is implied in the asadharanathwa spoken of here.

Anucheda 18

Nanu chathurdasaanaam swaraanaam madhye aakaaraadeenaam

Katham grahanam ? Satyam uktham

Ethshaam asaadhaaranathwena grahanam kritham .

Asaadhaaranathwam chaitheshaam urdhwadwanigaamithwena

Yadwaa shadjaadeenaam vyanjanaanaam swarathwm uktham .

Nanu ..sankethamathramethad uktham bhavathi

Achaaryaanaam paribhashethyatha:

But why are those which have beginning in aakaara , taken from the 14 swara ? I will tell you the truth. It is because of their asadharanathwa again. The asadharanathwa is in the upward movement and its swara vibrations. The vyanjana which starts in shadja etc is thus explained. This is the technical base only. All the names of swara are the translations(naming/nomenclature) is by ancient Acharyaas (teachers).They had demonstrated these to us.

Commentary : Here Mathanga uses 14 swara and not 16 as we use in language and literature and thereby shows he is specifically speaking of the 7 swara of music and their arohana and avarohana constituting 14 places. And he specifies the fact that the movement up and down is the important point and the vibrations at each of the 7 positions created by the force of movement .He also mentions that this is the technical base only and this was named by different earlier teachers and demonstrated to us by using instruments .This is now being explained by demonstration of Vadya /instruments for demonstration of swara used by ancient teachers.

Vadyaadibhedena swaraanaam chathurvidhyam.

By the difference in various vadhya/instruments swara have 4 types .

Commentary: The classification of swara as vadi,samvadi,etc is now being explained with demonstration on instruments. Such differences happen with instrumental use only .

Anucheda 19

Idaaneem avasaraprapham chaathurvidhyam

Swaraanaam darsayaami.

Thadyathaa-

Vadanaath vadanaa swaamivad

Samvadanaath samvaadee amaathyavad

Anuvadanaad anuvaadi parijanavad

Vivadanaaad vivaadi sathruvad .

This is the best time to tell about the four forms of swara .I will tell you that .Vaadi is that swara which is produced from face ,just like a master /yajamaana/swami.

Samvaadi is that which communicates by repeating ,as a minister (Amatya).Anuvadi is that which is followed and repeated by all the people (parijana) .Vivadhi is as if a enemy speaks (sathru is an enemy)

Commentary: sathru who does not agree with what is spoken by swami,amatya and parijana of one country .The debate of difference of opinion is thus a vivada in such a context. Thus all others being in harmony this appears in disharmony to the first adharasruthi. Thus vivadhi happen only when a different new instrument is introduced into an orchestra which is tuned to perfection for performing to an adharasruthi. Otherwise,there is no vivadhi in an orchestara even if it is using endless instruments well tuned to the adharasruthi but just a single instrument that is not tuned properly can produce an effect of a sathru in a village producing disharmony .A well tuned and well studied person will not produce vivadhi .But this does not mean that he should not sing all the permutations and combinations possible .But that he should be able to adjust even the vivadhi to the samvadhi,anuvadhi levels by his expertise and make beautiful harmony in music and life .This very important point is missed by many musicians who go on spreading a false message that melakarthaaraaga has vivadhi and therefore it should not be sung. In fact an absence of knowledge of what vivadhi means is the reason for this misinterpretation.

Anuchedam 20

.Nanu vadanaadhikam praanidharma:katham achethanaanaam

Swaraanaam sambhavathi? Satyam uktham.

Vadanam hi naamaathra raagaprathipaadakathwam

Vivakshitham ,na vachanam ithi.

Kim thath prathipaadayathi ?

Raagasya raagathwam janayathi ,

The cha vaadina:swaraa:sapthaiva,

Sa cha vaaadhyamsavad dasavidho bodhavya:

Vaadimandalam yathaa sa-ri-ga-ma-pa-dha-ni .

Vadanam (face/speech) is the dharma/function of living things and not of nonliving things.How do you apply such terms to swara ? Answer is what you said is true. But here when I say vadanam I do not mean speech at all. Then what do you mean by that ? I am speaking about the production of Raaga by the word Vadana/Vachana . Raaga has araagathwa and how it is formed is my teaching. All the swara (sapthaswara as 7 swara) are Vaadi .As the parts of vadya (vadyamsa) they become 10 and that Vaadimandala is sarigamapadhani .

Commentary: The vaadimandala or sapthaswaramandala is that which is mentioned here as Swamin or Yajamaana which produce Vaadi .(vadanaath vadanaa swaamivad). That is being accompanied by the minister as samvadi (samvadimandala) and people as anuvadi(anuvadimandala) and the perfect musician knows how to use a new instrument which produce disharmony (as sathru) by harmonizing a vivadhimandala by perfect blending .The apasruthi is turned to sruthi by a master musician only and thus a master musician alone can sing Melakartha (all possible permutation/combinations) without any vivadhi /sathru swara in his rendering and that is the perfect way to show that I am a

master musician as far as a musician is concerned .It is not enough if a musician states that he has mastered it but he has to demonstrate it by doing so .By that he/she demonstrates how beautifully the mandala of swara in all its complex permutations and combinations can be used in cosmic/biological scale for the benefit of all living things to have a harmonious existence with self and with cosmos.

Anuchedam 21

Samvaadinasthu puna:samasruthikathwe

Sathi thrayodasa navantharathwenaava-

Bodhavyaa :kim thath samvadithwam naama:

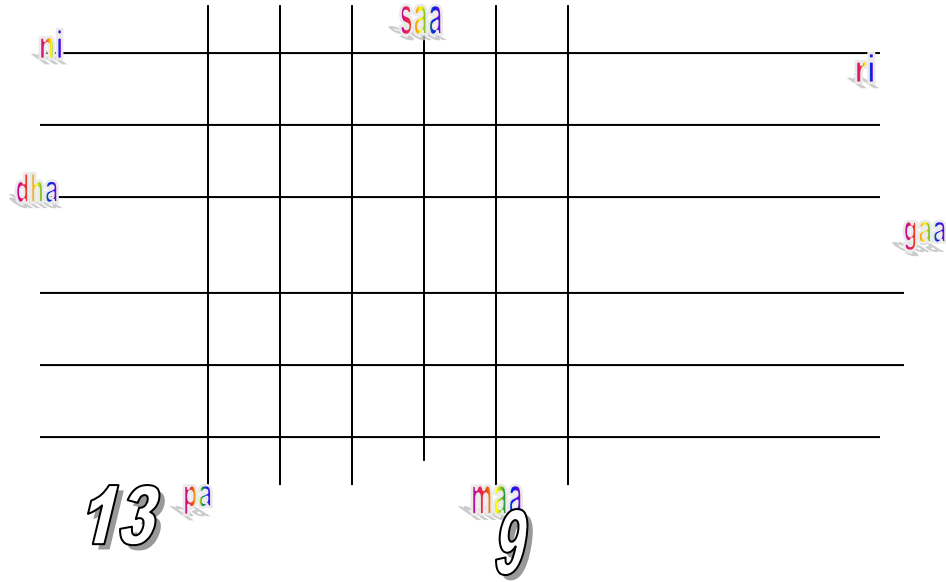
Yad vaadiswarena raagasya raagathwam

Janitham thannirvahakathwam naama samvadithwam

Samvaadimandalam yathaa-

Between 13 and 9 sruthi the intervals(anthara) has to be understood if one wants to learn what samvadi is. That is the equality of the two sruthis have to be cognized .Then what is samvadithwa ? What raaga is produced by the vaadiswara itself is samvadithwa. The nirvaahakathwa (what is said by master/king is executed by minister)is what one means by samvadithwa .

Commentary:The communication of what the king wills or orders to be performed I done by his faithful minister to all concerned. This execution of a desire to produce a raaga is what one means by samvadithwa and samvaadimandala represents the execution of the function of creating a raaga which the vaadi has in mind to create.



Now go back to the shadjagrama which we created earlier .

Ma is not the 4th from shadja and pa is not the 5th from shadja either. In between them are a series of integer vibrations and the SAMAPA (shadja/madhyama/panchama) is first equalized for obtaining a harmony and a person who does not know that there are many integers between these intervals (anatharakkol in Sangam literature) cannot understand the basic mathematics or the production of harmony using raaga or in short

he/she doesn't know how raaga is produced at all. Hence samvadithwa or communication through a Raaga is the same as raaga production ,says Mathanga. This is the first thing we do in Melakarta scale also .The shadja as adharasruthi,its panchama position as the next equalizer as fixed in relation to the adharasruthi and then ,the middle or madhyama either as sudha or prathimadhyama is determined for each raaga scale .

Anucheda: 22

Samvaadiprayogo yathaa-

Yasmin geethe yogalathwena parikalpitha;

Shadjasthasya sthaane madhyama:kriyamaano

Raagahaa na bhaveth.Yasmin sthaane madhyama:

Kriyamaano raagahaa na bhaveth.

Yasmin sthaane moorchanaavasaath madhyama:

Prayuktha:thasmin sthaane kriyamaana:

Shadjo jaathi raagahaa na bhaveth.

Shadjapanchamayo :staane pancha

Shadjou prayujyamanou jaathiraaga

Haanikarou na bahvatha:evam rishabah

Dhaivathayo :sthaane dhaivatha rishabhou

Prayujyamanou jaathiraagavinasakarou na bhavatha:

evam gandharanishadayo :sthaane nishaadagandhaarou

prayujyamanou jaathiraagahaani na kurutha:

kakubhasya dhaivathaamsathwena Revagupthyasya

Rishabhaamsathwena thadubhayaraagajananyaascha

Aarshabheejaathe rishabhansa parigrahaath

Parasparasambandhou cha prayujyamanou

Jaathiraagavinasakarou na bhavatha:

The prayoga (use /or technique of use) of samvadi is as follows: The shadja which is taken as the amsaswara in a geetha(song) if it is used at the position of madhyama it will not destroy the structure of a raaga.If one use madhyama according to the moorchana ,or if shadja is used there ,in both cases the raaga is not destroyed. So too if one uses in position of shadja and panchama ,panchama and shadja(in reverse order)then also it will not destroy the raaga .The dhaivatha and rishabha also can be used in the same way in reverse order as rishabha ,dhaivatha and this will not destroy raaga.The same is said of Nishada and gandhara .If we join Kukubha to an amsa of dhaivatah or if Rishabha amsa and rishabha jaathi is conjoined with Revaguptha ,since these are mutually related to each other, the jaathi and raaga are not destroyed.

Commentary:

Shadja	Madhyama
Shadja	Panchama
Dhaivatha	Rishabha
Nishadha	Gandhara

These 4 couple are said to be mutually interchangeable in their position and such interchange does not destroy the raaga at all. The positional interchange of these 4 couples makes the prayoga of the samvadimandala.

Then the text goes on to describe two ragas (kakubha and Revagupthi which shows they are ancient ragas popular during Mathanga's time) .

Some scholars have said that during Mathanga's time Raaga is known as Jaathi .It is not true because here he says raaga and jaaathhi separately .But during Bharathamuni's time jaathi meant a raaga itself.

Anuchedam 23.

Anuvadithwam cha punarekasruthyantharaheenathwena syaath .

Nanu kim thadanuvadithwam ?

Yath samvaadinaa raagasya raagathwam sampaaditham

Thath prathipaadakathwam naamaanuvadithwam

Ithi shadjagrame anuvadimandalam .

By decrease of one sruthi anuvadi is obtained.If an amsa is reduced from the swara couple shown above it is anuvadi.But what is anuvadithwa? That exposition by a samvaadi by which a raaga gets its raagathwa, is called anuvadithwa.

Commentary :Thus the interchange of vadi is samvadi and its exposition is anuvadi and in a sense the king, minister and the people are the harmonious whole functioning together for the sake of welfare of entire nation . Thus the anuvadimandala of shadjagrama is spoken of.

Anucheda 24.

Anuvadiprayogo yathaa

Shadjasthaane rishbha rishabasthaane shadja:

Prayujyamaana :swaroopam bhajan jaathiraagahaa na bhavathi

Panchamasya sthaane dhaivatha :prayujyamano

Dhaivathasya sthaane panchama :prayujyamano (jaathi)raagahaa na bhavathi.

Shadjasthane dhaivatha:prayujyamano

Dhaivasthane shadja:prayujyamano

Jaathiraaga vinasakaro na bhavathi.

Panchamasthaane rishabha:prayujyamaana:

Rishabasthaane panchama:prayujyamano

Jaathiraagahaa na bhaveth.

Madhyamasthaana rishabha rishabasthane

Cha madhyamasthathaa dhaivasthane

Madhyamo madhyamasthane cha dhaivatha:

Prayujyamano jaathi raaganaasako na bahvathi

The use or prayoga of anuvadi is as follows: If we use shadja in place of rishabha and rishabha in place of shadja they will behave in their own form and character and will not destroy the raaga or jaathi .If we use panchama and dhaivatha in their places and reversed then also no jaathi or raaga is destroyed.Dhaivatha in shadja and shadja in dhaivatha position is also likewise.Rishbha in panchama and panchama in rishabha place also is

used without destruction of raaga. The madhyama in place of rishabha and rishabha in place of madhyama will not destroy the raaga .

Commentary : The rules given is best illustrated as a table below .

Rishabha	Shadja
Panchama	Dhaivatha
Dhaivatha	Shadja
Rishabha	Panchama
Madhyama	Rishabah

Thus the first 4 as samvadi and the next 5 as anuvadhi are the rules of prayoga for exposition of a raaga which is permissible without any fear of destruction of a raaga or jaathi .

Anuchedam 25

Idaaneem Gandhara nishadayorekasruthyantharaheenathwena

Anuvadithwe praapthe dwwyantharaad vivaadithwam uktham.

Kim thad vivadithwam naama? Vadhyaadhibhi :swarair

Yadraagasya vaadithwam samvadithwam

Anuvadithwam praptham

Thadvinasakathwam naama

Vivadithwam ,vivadhimandalam yathaa.

By reduction of one sruthi in gandhara and nishada anuvadithwa happens. The happening of vivadhi by reduction of one from 2 sruthis is said before. what is vivadhithwa ? When vadi ,samvadi,anuvadhi are harmoniously producing a raaga ,if something destroys the vaadi ,it is called vivadhi. This happens when a vadhya (instrument) is used (and not when a person is singing) .Shadjagrama has a vivadimandala which is described below. Commentary: This is the most important statement that all singers and instrumentalists should read carefully .No vivadhi exists in a vocalist's singing Melakartha raaga or any other scale at all. The vivadhi comes when the harmony of vadi,anuvadi and samvadi is destroyed by a instrument (vadhyaadhibi) and this happens when an instrumentalist makes the singer sing to the tune of his instrument instead of following the sruthi of a singer .

Anuchedam 26

Vivadhiprayogo yatha-

Rishabhasthane gandhara:prayujyamano gandharasthane rishabha:

Prayujyamano jaathiraagahanikaro bhaveth

Dhaivathasthane nishada:prayujyamano

(Nishadasthane dhaivatha:prayujyamano Jaathiraagahanikaro bhaveth.Ithi shadjagrama).

The prayoga of vivadhi is as follows. Use of gandhara and rishabha interchanged in their position and also nishadha and dhaivatha interchanged is vivadhi ,By this both raaga and jaathi are destroyed.

Commentary:

As described above for the other examples of matching swaras we will see the couple of swaras which does not suit each other .

Rishabha	Gandhara
Dhaivatha	Nishada

This is a mismatched marriage or union. One cannot mate a elephant with a frog and a goat with a ox .The race will be destroyed by such union of couple .So too is the mating of these 2 swara .The balancing of Righa,Dhani is what is done in Melakarthaaraaga and this is the basics of Raasaleela dance of Krishna too which we will discuss later on .

Anuchedam 27

Idaneem madhyamagrame vadithwam samvadithwam

Anuvadithwam vivadithwam cha pradarsyathi.

Thathra vadi no madhyamadiswaraa:

saptha:navakathrayodasaaanthaa:

Samvadina :ekasruthyantharahanithwaad

Anuvaadina:dyantharou thu swarou vivadinou.

Now we can think of vadi,samvadi,anuvadi and vivadhi in madhyamagrama.In this swara starting from amdhyaamaswara are vaadi .Those ending in 9th and 13th sruthi are samvadi.The reduction in one sruthi from it is anuvadi and by difference in 2 sruthi is vivadhi .

Madhyamagrame vaadimandalam yathaa

Sapadhanisarigama (madhyamagrame)

Archikaadibhedena sapthavidha swarayoga:

In madhyamagramam the vadimandala is sa,pa,dha,ni,sa,ri,ga,ma

By the difference in archika etc there are 7 types of swara combinations resulting from this.

Anuchedam 28

Idaaneem sapthavidha swarayogasya naamaani kathyanthe-

Archikam,Gaathikam,Saamikam,Swaraantharam,

Ouduvam,Shadavam,Sampoornam chethi.

Thathaa chaaha Naarada:

“Archiko gathikaschaiva samikascha swaranthara:

Ouduva:shadavaschethi sapthama:

Ekaswaraprayogo ya archika:solabhidheeyathe

Gaathiko dwiswaro gneyasthriswaraschaiva saaamika :

Chathu:swaraprayogho hi kathithasthu swaranthara:

Ouduva:panchabhishchaiva shaadava:shadswaro

Sampoorna:sapthabhishchaiva vignayo geethayokthrubhi:

Now we will speak of the 7 types of swaraprayoga.They are names archika, gathika, samika,swaranthara,ouduva and shadava and sampoorana.

Narada has said : The seven are archika,gathika,samika,swaranthara,ouduva,shadavaa and sampoornam.Archika is one swra only.Gathika is 2 swara.Samika is 3 swara. Swaranthara is 4 swara.oudava is 5 swara ,shadava is 6 swara and sampoorna is using all 7 swara.Those who are learned in Geetha(singing song) knows this well .

Swarasamgnaanirukthi:

Now the reason for naming the swara is given according to niruktha of the word .

Sl 55

Shannaam swaraanaam janaka:shadbhirvaa janyathe swarai:

Shadbhyo vaa janyathelamgebhya:shadja ithyabhidheeyathe

Shadja is the swara which can produce 6 swar,and can be produced by all the 6 swaras,and that which is generated from 6 anga or organs.

Commentary: In Classical music Shadja is given the place of Krishna .The Brahman who produce all the cosmos and the shadchakra as prakrithi/prapancha and is produced from anywhere in the universe and from everything .It is the all-pervading principle or first cause of everything .Hence it produce all, is produced by all and is the origin of all and generator of all. But can be the creation or generation by all .It is the basic swara from all is produced and all merge and all can produce it and get transformed to that state .

Sl 56

Praapnothi hridayam seeghramanyasmaadrishabha:smritha:

Sthreegavishu yathaa thishtan vibhaathi rishabho mahaan

Swaragraame samuthpanna :swarolayamrishabhashthathaa:

Sl 57

Vaacham gaanaathmikaam dhatha ithi gandharasamjnaka:

Swaraanaam madhyamathwaacha madyamaa swara ishyathe

Sl 58,

Swaraantharaanaam visthaaram yo,mimeethe sapanchama:

Paarakramena ganane samkhyayaa panchamolathavaa

Sl 59

Dheerasyaastheethi dheemaamsthatsambandhi dhaivatah;smritha:yadwaa

Shashtasthane dhritho yasmathenaasou dhaivatho matha:

Lalate dhaivatha:ithyartha:

Sl 60

Nisheedanthi swaraa:sarve:Nishaadastehna kathyathe.

Rishabha is swara that is generated from other swara and reaches one's heart easily .It is like a great bull among several cows.It has a great place among that herd. It is generated from the swra graama (gamut of swra making a village)

Gandharam is that swara which wears the word (vaak) which carry the gaana or song.

The swara in the middle of other swaras is called madhyama due to that position.

Panchama is the swara that functions in the prasthaara(expansion) of the swara.It is the swara which is uttered loudly in a lesson (teaching session) of swara from neck .

Dhaivatham is a name given as the intellectual (Dheemaaan) and it is the 6th position in the swara group. The position of dhaivatha in body is the forehead .
Nishada is the final resting place of all other swara .

Commentary:

The importance of this description is that it gives a localization of swara to a chakra .When it says that dhaivatha is lalata(agnachakra) and is seat of intellect and nishada is the final resting place of all swara as the brain (sahasrarapadma) the others ahs to be guessed in order. Thus shadja is the adharasruthi and the moladhara from which all originate and which is generated by all .It is omniscience .The Rishabha is swadhishtana and is a village chieftain with a great place among its consorts and people and is an insider of the graama and the signs of a shadkon(hexagon) and a BULL in IVC shows how the ancients gave importance to these signs.Gandhara is the vak or saraswatha with geetha (musical literary word) and is the symbol of Aja or birthless ,and is the Gandharvaswara that carry the word (vartha)with seasons and wandering tribes to entire directions. They are thus given the place of the gandharva tribes which travels with winds and seasons and carry news and words and arts of music and dance. This symbol also is seen in IVC /Harappan seals.Madhayama and panchama has importance as the middle swara and the swara that is uttered high and loud when a musical paata (samaveda chant) is taught. The panchama is thus important in vaikhari(uttered /pronounced word).Ga is from manipoora,ma from anahatha and pa from visudhichakra in body. The dhaivatha is the agna chakra and the yogi who has raised upto that level is a dheemaan and the first letter of dheeman and dhaivatha are same .The 6th chakra is agna and dhaivatha is there. We do not see frogs depicted in IVC seals but as said before the Rgvedic reference of frogs chanting music as samavedins during rainy season is indicative of its existence from vedic age. The nishada or elephant is a major sign that occurs in IVC seals and it is the entire sahasrara and the seat of all other chakras ,the highest attainable region for the ascending swara along kundali .

Anucheda 29.

Swaraanaam sapthasamkhyaa niyama:

Nanu katham saptha swaraa ithi niyama: ?Uchyathe

Yathaa saptha dhaathu aasrithathwena sapthaiva dhathavo

Rasaadayo gneyaa: thathaa chaaha susrutha:

Thwagasringmaamsamedolasthimajjaasrukaani dhaathava: ithi

Thathaa sapthachakraasrithathwena

Sapthadweepaasrithathwena vaa sapthai va swaraa ithi.

The decision of swara as 7 is now expounded.Why a law is made that only 7 swaras possible ? It is because human body has 7 dhathu .Susrutha says skin,blood,flesh,fats,bones,bonemarrow and semen are the 7 important dhathu .Similarly there are 7 chakrasthana in body .There are 7 islands in world.The swara are represented by these.

Commentary:

Swara/number	Dhathu	Chakra	Dweepa	Loka
Sa 7	Skin	Mooladhara	Ilavrih	Earth(bhoo)
Ri 2	Blood	Swadhishtana	Jambhu	Bhuvar
Ga 3	Flesh	Manipoorra	Salmali	Swar
Ma 5	Fats	Anahatha	Plaksha	Mahar
Pa 1	Bone	Visudhi	saaka	Jana
Dha 4	Marrow	Agna	Swetha	Thapa
Ni 0	Semen	Sahasraara	Dhruvam	Satya

Sl 61

Swarajaathaya:

Chathu: sruthiswaraa vipaasthrisruthi kshathriyou mathou

Vaisyau dwisruthikau gneyou soodrou chaantharakou swarou

Now the jaathi or class of swara is said. If 4 sruthi are joined it is Brahmana (Chathusruthi). If 3 sruthi join it is kshathriya (Thrisruthi). If two sruthi join it is vaisya (dwisruthi). All the anatharasruthi (the interval sruthi or integers are sudra).

Commenatary: The importance of this is a ratio between the several classes.

From 22 sruthi 4 joined is 4/22 and it is Brahmana ($2/11 = 0.18$ as fraction). Then 3/22 is kshathriya. $3/22 = 0.13$ as fraction. The next is $2/22 = 1/11 = 0.09090909$..as a recurring decimal. The last is soodra $18/22 = 9/11 = 0.818181$..another recurring decimal.

Thus the fractions of 0.18;0.13;0.09;0.81 is obtained. Of these only 13 is a odd number when we consider divisibility by 3 and 9. Thus kshathriya is different from Brahmana, vaisya and soodra in his nature of power and warlike veerya. The emotions of music are mainly produced by such combinations of sruthi. Raagabhava is as a result of such mathematical ratios. 7 swara dividing 22 sruthi is the paridhi of a circle which is roughly 3.1428571428571,....

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Sl 62.

Aagamasya swarodhaara:

Vargashtakam thu samprapya

Akaaraantham ya saanthakam

Varnamathraa samaayuktham udhareth swarasapthakam

Swara are awakened (produced) according to the aagama(veda). It is now said. Once we cognize the 8 varga which begins with akara and ends with sakaara, then we will think about the varna and mathra (colour and unit) which unite to make a swarasapthaka (the octave)..

Commentary: Here it is clearly stated that from the grammatic alphabetical swara and vyanjana is the derivation of the swara and their names and forms and this has occurred along with development of a language in human beings.

The vargaashtaka or ashtakavarga is the octave which is the basis of both Jyothisha and Music for prasthaara or expansion of a field(mandala) of energy of sound and light. This vargashtaka is what is called an octave. This is according to aagama or veda of India as

said clearly by Mathanga and since such a concept of science is not seen either in Greek music, astronomy or maths of early period it is very clear that the greek scholars had come across it from the musicians and vaisya class trade/commerce people who took the knowledge in piece to wherever they went .

The alphabet starting with a and ending in sa has 16 +25+ 7 letters or aksharavarna and each is given a mathra or unit of number in vedic cosmogony .This is here mentioned by Mathanga as varnamathraasamyuktha (union of mathra and colour) .The science of formation of colour and sound by union of vibrations and units in various proportions is known to the ancients .

Sl 63

*Ashtamasya thritheeyam thu Haribhejasamanwitham
Adhyam swaragnasthudhareth sarvaprayathnatah:*

Among the octave (8 varga) the third is sa and that uniting with Haribheeja A makes shadja ,the first swara.

Commentary :The shadja is thus naturally made from the thritheeyam ssss (as a breath/vaayu sound) and the aaaa saaaaa .Thus the varga of ashtavarga is not the saptaswara or octave as we now call .It is the third principle vaayu (first being aakaasa,second agni and third vaayu) which is made from sabda(of akasa)and form of agni and a combination as vaayu .This joins with Haribeeja at nabhi or manipoora (where the digestive fire ,water and earth are joined by vaayu) and give colours and mathra or units related to that form and functions.Shadja is thus a modification of all forces acting from Mooladhara to Nabhi (swadhishtana) and it includes all the potential swaras that are formed later as a beeja(Haribeeja) of all swara in future to be formed .This is the first swara sarga or creation. But it remains unmanifested at root of kundalini to be raised by effort .

Sl 64.*Sapthamasya dwitheeym thu kaamabeejasamanuitham
Dwitheeyam thu swaram vidhi Brahmasthaanasamudbhavaath*

In the sapthavarga the second is Ra and it unites with kaamabeeja eee to form Ri .In the Brahmasthana it is formed as Brahmagranthi .

Commentary:This is then the first to form and that is why it is called a rishabha among all cows as swaras.The rissssssssaaaaa (Rikshaa or Rikshas tribes of Jambavaan is considered the most ancient hominids in India and South East Asia and Ri followed by Saaa giving Riii(+)saaaaa is this race and the Brahmi letter + stands for Ka .The alphabets Ri,+ and Saa are seen in IVC Harappan seals showing the ancestry of the people .(This symbol is written by the Vaidya of the land as Raksha meaning protection in a prescription.I find this interesting since the same is copied as Rx by western medicine .

Sl 65

*Dwitheeyaapi vargasya thritheeyam vishnusamyutham
Udharecha swaram nityam swarabhedamanoharam.*

In the second varga with 7 numbers, the third is ga and it joins with Vishnubheeja Aa and forms the beautiful gandharaswara for musical minstrels of Gandharva
This also happens at nabhi in manipoora.

Sl 66

Shashtasyapi hi vargasya anthimam chaadisamyutham
Avinashtam vijaaneeyaath madhyamam swarasathamam

The 6th varga has the 4th letter ma which join with Vishnubeeja to form the middle madhyama which is the great (sathama) or greatest among swaras .This is at anahatha or Hridaya which is seat of compassion and of the lungs as organs full of praana which is then raised up to form the spoken word/and music. That is why this chakra is the greatest .

Sl 67.

Thadaadiprathamopetham swaram samvidhi sobhanam
Vyoma samkhyasamaayuktham oshtasthaanasamudbhavam.

The 6th group first is pa which joining with aa of Vishnubeeja creates the 5th Vyomasamkhyas generated from lips .This is vaikhari from the visudhichakra of neck .The vyomasthana because here the air travels from heartspace through a tubular structure cylindrical producing voice as described earlier and this is Aahatha sound in contrast to anahatah sound which is produced without any friction or unstruck voice.

Sl 68

Panchamasyaapi vargasya chathurtham chaadisamyutham
Kodandadwaya sambhootham udhareth swaram uthamam

The 5th group has 4th swara dha which is forming a form as if two bows are joined together and it is the best sound produced by a scholar ,a dheemaan .
The Bow is a sign which appears in all tribal cultures and India is not different .In cave people's drawings we find bow and arrows .In IVC and Harappan seals we find it .And in Sangham literature Bow is the sign of Chera kings (while fish is that of Pandhya and tiger that of Chola all shown in IVC seals).In alphabet the typical Dha as a bow is seen in Malayalam is significant since Mathanga lived in Kerala and a part of Chera kingdom and Dhanus or bow was the sign of Kerala kings as Tribal most ancient race of India .

Sl 69

Akaaraanyaanthasambinnam panchamaantham samudhareth
Brahmasthaanasamudbhootham suthaaradwanisamyutham

The fifth group has na which as different from akaara originates from the Brahmasthaana and arise up to the top level of sahasrara and represents entire brain structure and entire human body and its functions.

Na is the sound which we hear when a bell is sounded .The bell in a upturned fashion is drawn on people who do chanting of saamaswara and a short line as a symbol of feminine ee is drawn on its middle .This is naama sign which we still see in anthropological living humans and is seen in IVC and Harappan signs, seals etc.

This is a significant sign. Nishaada and elephant (Gananaayaka) is the Omkara representing entire cosmic field as well. From Na of Kundalini in Mooladhara upto the sahasrara is represented by it. Na is united with kamabeeja (feminine) to form ardhanaari . The only swara with kaamabeeja are Ri of Mooladhara (Rishabha or bull) and the Ni of sahasrara which actually contains both mooladhara and sahasrara . Both have shivasakthi or Hari and Sri joined.

The Sa and Ri if joined is Sari/Sri

In reverse order it is Risa/Rsi /Riksha

Whether we say Rishi or Sri it is the same and it doesn't make difference in raaga as per the rules said above.

The Rishi or Sri at base if added to Ni at top makes Sreeni /Nisree .Sreeni is the part of Srinivaasa and Nisree is part of Nisreyasa .The naamam on forehead indicates the person wearing it is that personified.

Commentary:

The entire description gives an idea of what ancients meant by swarodhara and udhara of kundalini and chakra and how it could be demonstrated only by musical swaraa and sruthi .

As I had explained the Sri and Ni are the alpha and omega of all knowledge and creation . In between the purusha and prakrithi depicted by that lie the Gamapadha without kaamabeeja and containing only Vishnubeeja. This is the part of Shiva .The Ga (in prakrithi it is pronounced as Ka) and Dha makes his Dhaakka .And this in reverse order gives the Kadhaa or Harikathaa. This part has no Kaamabeeja since Kaama was conquered by Shiva. But the Ga of this part when it joins with Ri (with kaamabeeja) through Vishnu and the Dha of this part which again through Vishnu joins with Ni (with kaamabeeja) it makes the ardhanaareeswara of HariHara .Thus the Naama ,which a Vaishnava wear is also indicative of Shivasakthi and a Dakka which a Shaiva wear is also indicative of Vishnu .

If we consider the Shivalinga iconographically we will find that what we call Brahmagranti, Vishnugranti and Rudragranti are also depicted in cosmic scale and in an idol in temple .

The Brahmasthana is the base which is square (chathushka) and the Vishnusthana is Yoni or womb of all in middle with octagonal shape and Shiva or Linga part is a global or cylindrical part (spherical) and a combination of square, octagon and spheroidal cylinder is what a idol or Shivalinga is and it is a geometrical and mathematical precision of what is just now said of human body .The spheroidal globe is head, the octagon is body and square is the base earth .The octagon is vaayu and directions through which it spreads all over the body and around planet earth and the top cosmic sphere as a whole is the deciding factor in its functions .The bhoor, bhuvar, and swar of Gayathri is thus shown in these 3 parts .

Sl 70 Aagaamastha: swarodhaara: ithi thaavath pradarsitha:

Thus I have explained the awakening of swara according to the vedic diction.

Swaraanaam kulavaranaadhi nirnayam.

Now the kula of swara is determined as well as its varna.

Va stands for Varnam (first letter) and sa for swara (first letter) Thus a Vansa is formed .From first letter of varna and the first letter of swara .Vansi is a bamboo flute also which produce all swara and varna.

Sl 71.*Devkulasamutpanna:shadjagandharamadhyamaa:*
Pithruvansasamuthpannaa :swarolasou panchama kila:
Shadja,Gandhara and madhyama are of Devakula .Panchama is from Pithrus .(Ancestors).

Sl 72 *Rishivansa samuthpannou swaraa vrishabhadhaivathou*
Asuraanaam kule jaathu nishaadha : sa ni samjnitha:
Rishabha and Dhaivatha are from Rishivansa.Nishada is from Nishada vansa which is an offshoot of Asura vansa the cousins of the Devas.

Sl 73
Padmapathraprabha:shadja rishabha: sukavarnaka:
Kanakaabhashthu gandhaaro madhyama kundasannibha:
Shadja has the colour of lotus petal.Rishabha has parrot green colour.Gandhara is golden.Madhyama is white as jasmine flower.'

Sl 74
Panchamatsthu bhaveth Krishna :peethavarnasthu dhaivatah:
Nishaada :sarvavarnoyam vigneyaa :swaravarnikaa:
Panchama is dark 9(Krishna) and dhaivatha is yellow.Nishada is all colours(multicoloured as a rainbow) .

Sl 75.
Shadjasya daivatham Brahmaa rishabho vahni devathaa
Gandharo Bhaarathee devo madhyamo Haradaivatha:

Sl 76.*Panchama :sathayajnasthu:dhaivathu gananaayaka:*
Nishaado Bhaanudevasthu ithyethe swaradevathaa
Devatha of shadja is Brahman,of Rishabha is Agni,of Gandhara is Bharathi/Saraswathi ,of Madhyama is Hara (Shiva) of Panchama it is Indra (who did sathayajna/Sathakarni) and daivatha has Ganapathi and nishada has Surya as devatha .

Sl 77
Agnigeetha:swara; shadja rishabho Brahmanoditha:
Somena geetho gandhaaro Vishnunaa madhyamaswara:

Sl 78 *Panchamasthu swaro geetho Naaradena mahaathmanaa Dhaivathascha*
nishaadacha geethou Thumburunaa swara:
The singers of each swara is given.Agni sang shadjam.Brahman sang Rishabham.Gandharam was sung by Moon.Vishnu sang madhyama.Narada sang panchama.Thumburu sang both dhaivatha and nishada.

Sl 79.*Hasyasringarayo :karyou swarou madhyamapanchamou*
Shadjarishabhou thathaa gneyou veeraroudraadbhutheshu cha.
Madhyama and panchama are best for hasya and sringara rasa .Shadja and rishabha are for veera ,roudra and adbudha .

Sl 80
Gandharascha nishadasha karthavyou karune rase
Dhaivathaschaapi karthavye bheebatse sa bhayaanake
Gandhara and nishada are best for karunam and dhaivatham for bheebatsa and bhayanakam.

Sl 81
Kandaath uthishtathe shadjarishabha:sirasa:smritha:
Naasaayaschaiva gandhara uraso madhyama :swara:
From neck arise shadjam. Rishabha from head.Gandhara from nose.Madhyama from chest .

Sl 82.*Urasa:sirasa:kantaaduthitha:panchama:swara:*
Thaludesath samuthpanno dhaivathasthu yasaaswini
Nishadasthu samuthpanno vigneya sarvasandhitha:
From chest,head and neck arise the panchama.Dhaivatha is from palate.Nishada is from all joints together .

Sl 83. *Evam swaraan vijaaneeyaad uthpannan geethasaagare*
Mahaadevamukhodhathaan deseemarge cha samsthithaan
Thus from the ocean of music ,the diffeent swaras were awakened.The swara created from face of Mahadeva are in the desi sampradaaya.
Commentary: This last sloka is a special one.It states that music is an ocean and the swara are awakened in succession from that cosmic ocean like waves in a series.Then he says that the singer (Mahadeva as the human singer) takes those swara from ocean and those awakened swara from a living singer like the great Shiva are coming under the Desi or local sampradaaya .

The desi is what is called the saama from the five faces of Shiva.The cosmic music is from the ocean of milk on which Vishnu has Yoganidra.That is margi and shiva's music is desi and for us to understand raaga we have to delve deep into the ocean of music through a human living singer and no other way to understand that ocean of nectar . From Sri to Srinivasa and then to the Nirvrithi(ecstasy) of Niiiii as Thaaraswara of cosmic music we have to delve deep but however much we try we remain at the coast ,playing with pebbles and shells and sand particles and the depth and vastness of the ocean is experienced but not cognized fully .

5 Graamamoorchanaaa prakaranam

Anuchadam 30

Sl 84 *Thatha kim uchyathe graama sabdena:? Nanu kathi graamaa bhavanthi ?*
Kasmaad uthpadhyathe graama: kim vaa thasya prayojanam ?

What do you mean by the word Graama ? How many graamaas are there ? From where does Graama originate ? What is its use ?

Sl 85 *Athochyathe-*

Samoohavachinou graamou swara sruthyaadi samyuthou.

Yathaa kudumbina :sarva ekeebhoothyaa vasanthi hi .

I will tell. A grama is a group of associations of swara and sruthi .Just as all members of a family live together in the same house .

Sl 86 *.Sarvalokeshu sa graamo yathra nityam vyavasthithi:*

All people ,always live together in a village or grama .

Commentary: Here the simili are first to a joint family where different individuals live together and then to a village where different families with different individuals in each of the family live together in harmony. In the same way groups of sruthi and groups of swara are in harmony in a graama in a musical sense .Thus same word is used for two different purposes .And such families and such villages exist in world in all times and in places and it is a worldly law and a common occurrence known to all people ,so that the simili is understood even by a common person.

Sl 87. *Shadjamadhyamasamjnau thu duou gramou visruthou kila*

Gandharam Narado Broothe sa thu marthyair na geeyathe

The most popular grama are two .One is shadja and the other is Madhyama. Narada has said about gandhara grama. But it is not sung by men.

Commentary: Why is Gandhara not sung by men? It is a music which was created in the celestial spheres and is the music of spheres ,sung by minstrels called Gandharva who travel with the 49 winds and the Indra in suvarloka (in solar orb and in anthariksha) and human beings of ordinary type cannot sing that .Therefore humans restrict themselves to shadja and madhyama graama and divine beings to Gandhara grama .

Sl 88 *Saamavedaath swaraa jaathaa:swarebhyo graama sambhava:*

Dwaavethou cha eemou gneyou shadja madhyama lakshithou.

Swara originated from Saamaveda. Swara is the base of origin of graama.(gamut) and shadja and madhyama were formed from it .

Anuchedamm 31

Prayojanam cha yathaa-swarasruthi-

Moorchanaa thaana jaathiraagaanaam

Vyavasthaapanathwam –naamaprayojanam

The use of gamut or graama is to form a rule and decide the differences and thus names of various entities like swara, sruthi, moorchana, thaana, jaathi and raaga.

Commentary: Without such nomenclature and differentiation one cannot teach music to anyone. The knowledge has to be transmitted by such classification and nomenclature and that is the use of graama .

Anuchedam 32.

*Nanu katham shadjamadhyamaswaraabhyaam graamanyapradesha: ?
Uchyathe asadharanathwena thaabhyaam gramanyapradesha:
Asadharanathwam cha devakula samuthpannathwena.*

But how did the grama get names like shadja, madhyama etc which are dependent upon names of swara? The answer for that is : By their asadharanathwa. The asadharanathwa or uncommon ,rare quality is because they were born in the kula(race) of Deva(divinities/light).

Sl 89 *Thathaa chaaha Narada :*

*Devakula samutpanna: shadjagandharamadhyamaa:
Etheshaam devathaa gneyaa Brahmaa, Vishnu, Maheswara:
Ubhayorgaamayormadhye mukhyathwam kasya gamyathe
Shadjasyaiva hi mukhyathwam gamyathe vachanaanmune:*

The same is said by Narada. Shadja, Gandhara and Madhyama are from Devakula. The Lords are Barhma, Vishnu and Maheswara .Between the 2 grama which one is more important ? According to Muni(Bharathamuni) shadja is more important .

Ethaduktham bhavathi

Duou gramou visrutham lokam shadjamadhyama samjnithou

It is said that in the world shadjagrama and madhyamagrama are famous and popular.

Anuchedam: 33

Nanu katham duaaveva graamou ? Uchyathe –iha hi

Dwi swaraprayoga moolaprayogavasaath dwou

Graamaavyupanyasthou

Jaathibhi: sruthibhischaiva swaraa graamathwamaagathaa

Then why only 2 grama were formed ?The answer is: Because the union and prayoga (technique) of Raaga is based on those two swaras .Through swara and jaathi the graama gets their graamathwa.

Commentary: The technique of making a raaga takes the basic union of shadja(the adharasruthi) and the madhyama which is shown in a previous section . The very fact that raaga depend on these 2 swara gives them importance as the two grama forming raaga .The gramathwa or the harmonious co-operative existence of all sruthi and jaathi depend upon tehse two persons (shadja and madhyama) being in perfect blend or union. Thus two things are important .

1 The harmony should exist in a group/graama whether village or musical gamut

2. For that the essential requirement is a perfect blend /cooperative function of the two swara-shadja and madhyama in a musical creation.

Anuchedam 34

Thathra jaathibhi: sudhaabhirvikrithaabhisha sruthibhicha

Thasmaath sudhaasu jathishu vikruthaasu cha ye

Swaraa: santhi theshaam swaraanaam sruthivaikalyaath

*Kinchid uthkarshaabhyaabhyaam samkeernathwena
 Cha swaraa graamathwam aagathaa: thathra sudhaabhi:
 Shadjo vikrithaabhir madhyama ithi dwaabhyaam
 Cha samkeernaa jaathaa :thaabhyo raaga sambhava
 Ithi graamaanyathwaajjaathiraagaanyathwam*

Jaathi are sudha and vikritha.By jaathi these 2 jaathi and sruthi are meant .The swara in sudhajathi and vikrithajathi due to change in sruthi(vaikalya of sruthi) gets either uthkarsha or apakarsha .The mixture of this uthkarsha and apakarsha gives the gramathwa .Shadjagrama is from sudhajathi and madhyamagrama from vikrithajathi and from both the samkeernajaathi are originated.From jaathi raaga originates.By gramabheda and jaaathibheda different raaga(raaganyathwa) are formed.

Moorchanaaniroopanam

Anuchedam 35

*Idaaneem avasaprapthaa moorchanaa :kathyathe
 Nanu moorchanaa sabdasya vyuthpathi:
 Keedrisi ?Lakshanam cha keedrisam thasya ?
 Uchyathe –moorchanaa vyuthpathi :moorcha
 Mohasamucraayayo :*

Sl 90 *Moorchayathe yena raago hi mooorchanetyabhisamjnithaa*

Now,the moorchana used according to context is said.Moorchana is a word the niruktha(etymology) of which has to be understood.What is lakshana of moorchana ? I will give a answer.Moorchana has an etymology as below: Moorch is a dhathu which means Moha or a comatose/unconscious state .Samuchraya is a word which means increase .Whatever increase the raaga or grow its raagathwa is a moorchana .Raaga is incidentally varna and ranjakathwa (colour and that which makes one happy).

Sl 91 *Aarohanaavarohana kramena swarasapthakam*

Moorchanaa sabdavachyam hi vijneyam thad vichakshanai:

The octave(swarasapthaka) is used by ascending and descending (arohana and avarohana) notes and that is meant by Moorchana ,says scholars.

Anuchedam 36

*Saa moorchanaa dwividhi –sapthaswaramoorchanaa dwaadasa
 Swaramoorchanaa chethi .Thathra sapthaswaramoorchanaa
 Chathurvidhaa-poornaaa,shaadavaa,ouduvithaa,saahaaranaa chethi.
 Thathra sapthabhi:swarair yaa geeyathe saa poornaa
 Shadbhi :swarair yaa geeyathe saa shaadavaa
 Panchabhi:swairiyaa geeyathe saa ouduvithaa
 Kaakalyantharaswarairiyaa geeyathe saa saadhaaranaa.*

Moorchana are of 2 types. One is that with 7 swara. The other is that with 12 swara. The moorchana with 7 swara is of 4 types. Poorna or sampoorana has all the 7 swara. Shadava has 6 swara. Ouduvitha has 5 swara. And the one with sadharana swara. Sadharana means that with kaakalinishada and aantharaswara.

Anuchedam 37.

Idaaneem moorchanamandalam uchayathe

Thathra paripaatyahithatwena pravritthathwaath sapthaswaraanaam moorchanaanaam prathigramamekonapanchaasath

Swaraa:koshtaascha bhavanthi.

Thadyathaa-

Sl 92. *Ekonaa:khalu panchasath karthavya:swarasamyuthaa:*

Thiryag urdhwam cha rekhsbhirashtabhischaiva koshtakaa:

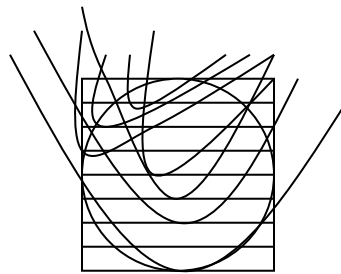
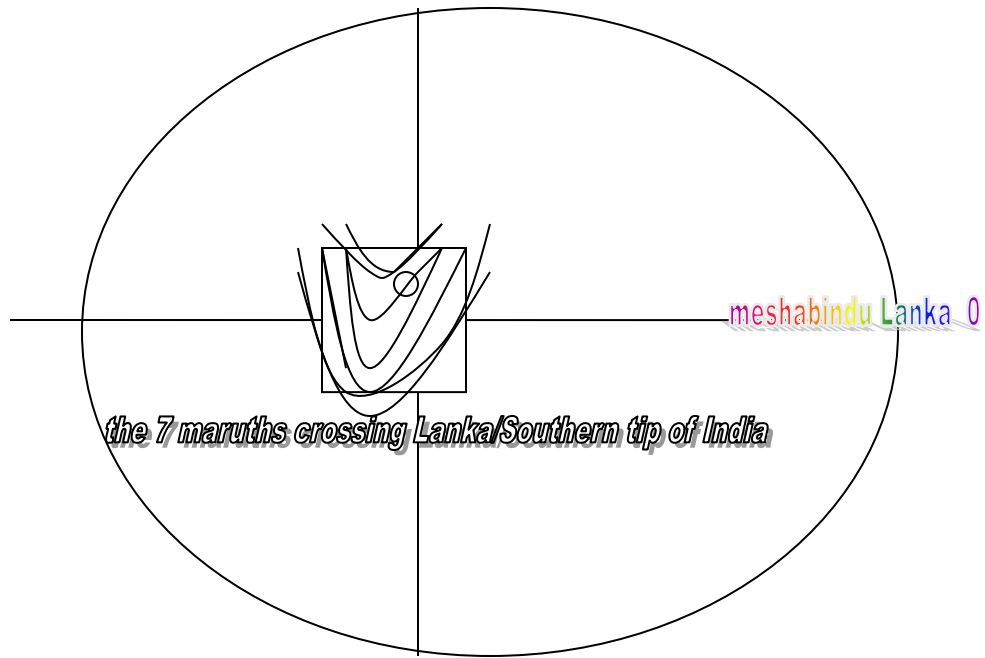
Now the murchanamandala is explained. In murchanamandala in each grama, 7 swara each total of 49 swara has to come. This is called a koshtaka (a guild /a group). It is as follows: Draw 8 lines in horizontal and transverse directions and mark 7 swara each in the squares thus formed

Commentary: the 49 swara (prana/Maruths) are thus forming a guild called Marudgana of Divine friends of Indra. This murchanamandala of prana/maruth is what is there around India and Srilanka as monsoon and the people of India have been in constant contact with its movements and how it forms movements as prana within to produce sound and music in biological field.

In chilappathikaram when the rasaleela is done by the women of the yadava clan and there the poet says “ In the Koshta, the seven rishabha /cattle grow and the rasaleela is done by Krishna (shadja) and Balarama (panchama) with the gopika (other swara) .

Sa	Ri	Ga	Ma	Pa	Dha	Ni
Ni	Sa	Ri	Ga	Ma	Pa	Dha
Dha	Ni	Sa	Ri	Ga	Ma	Pa
Pa	Dha	Ni	Sa	Ri	Ga	Ma
Ma	Pa	Dha	Ni	Sa	Ri	Ga
Ga	Ma	Pa	Dha	Ni	Sa	Ri
Ri	Ga	Ma	Pa	Dha	Ni	Sa

In this shadajagrama see that when we join all swara of the same type, the oblique lines (Karna) make a series of parallel lines and this is the same type of koshta which we draw in astronomy to make latitudes/longitudes above and below the equator .



The geodesic division of globe with the 7 maruthgana and paths

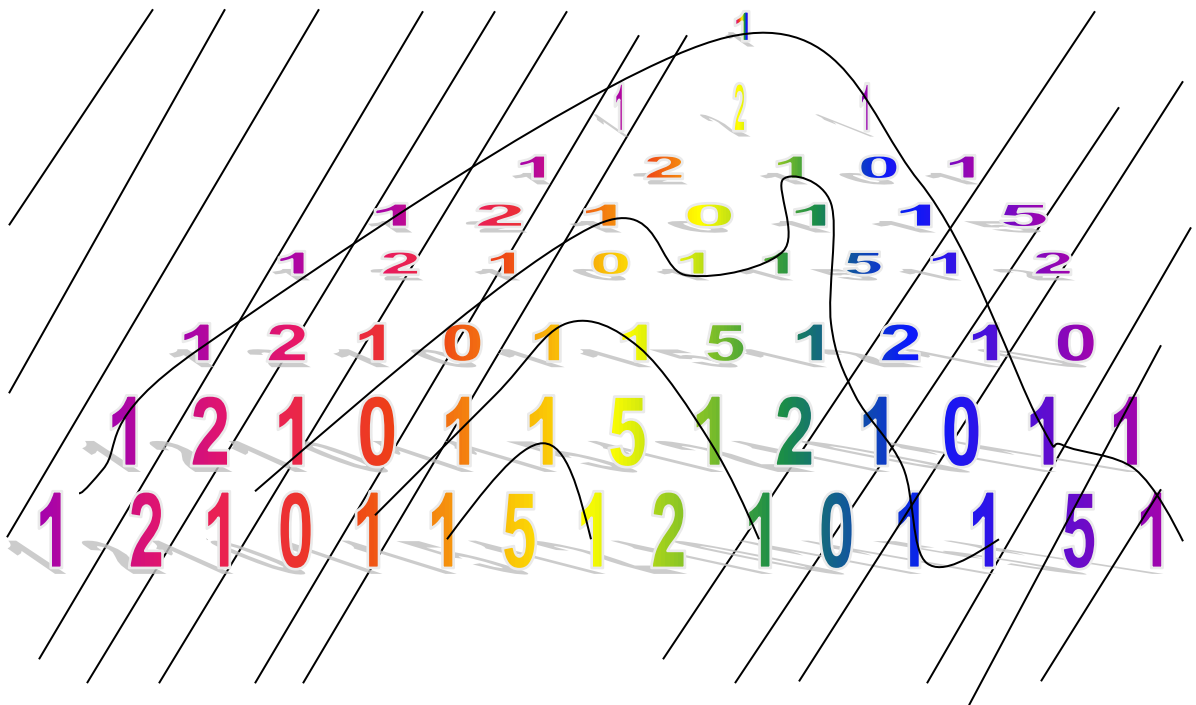
How this was divided as a cartograph of square:

A 11 X 11 square = 121 area.(Roughly 120 degree.

A 22 X 22 square =484 .(A circle of 360 + 124 degree) Can be taken as 364 or 5 +120 degree .

1 degree being 4 minutes a 11 degree space is 44 minutes and 22 degree space is 88 minutes(1 hour and 28 minutes).Indians took 8.8 as the time for light from sun to travel .This is the Naali/Naadi or the canal through which energy flows.The Bindu as Pisces last and mesham 1st(aswini) and Lanka is not a fixed bindu since the point changes in 5 years and comes back to original position in 5th year(the Panchavatsara year of Paithamahasidhantha).The two pisces facing to either side represents the Pisces Rasi,the two oceans on either side of Tamil Nadu/South India (old Kerala also was part of Tamil country) and that is the gate of Pandya ,called Kavatapura(Pandya has fish as sign just as Indus valley people since both Tamils and IVC are same).Kavatapuram also change position due to oceanic natural calamities .How the 121 was made into a pascals triangle ?

Joining the number 1 I have made 4 geodesic paths on this Pascal's triangle of swara .



The same thing if used as a khandameru one can make a 1/4th of Srichakra known as Meru and also a representation of cosmos

Anuchedam 38

Thathra sani-dha-pa-ma-ga-rityadya: saptha shadja grame

Ma-ga-ri-sa-ni-dha-paadyaa :saptha madhyamagrame.

Thiryag urdwagaa api swaraa :karya:thadyathaa

Ni dha pa ma ga ri sa ithi shadjagrame.Gari sa nidhapamaa ithi madhyamagrame.

Evam thavad ubhayagramikrischathurdasa moorchanaa:sampoornaa:

In shadjagramamurchana we start with sarigamapadhami in first line while in madhyamagrama we start with magarisanidhapaa.The swara are in order in vertically and horizontally .In shadjagrama the vertical line will show nidhapamagarisa on last column.In madhyamagrama it is garisanidhapa.Thus 14 murchana in both the grama is obtained.

Commentary: The shadjagrama is drawn above .The lines are first drawn.Then the first line is filled with sarigamapadhami.Then second line start with last swara of the first line – which is Ni and write in that order.The 3rd line thus starts with dha which is last swara of second line.Thus when you write you will get the nidhapamagarisa on the vertical column as last ,as shown above.

The madhyamagrama is drawn in same way .First line is magarisanidhapa .Then proceed with pa as first swara in second line and see whether it will give garisanidhapama on last vertical column as said .You do get the order Garisanidhapama but not vertically but in horizontal last line .This is what Mathanga meant by saying Thiryag Urdhwaa api swaraa .One is from up to below and the other is opposite to it ,horizontal.

Ma	Ga	Ri	Sa	Ni	Dha	Pa
Pa	Ma	Ga	Ri	Sa	Ni	Dha
Dha	Pa	Ma	Ga	Ri	Sa	Ni
Ni	Dha	Pa	Ma	Ga	Ri	Sa
Sa	Ni	Dha	Pa	Ma	Ga	Ri
Ri	Sa	Ni	Dha	Pa	Ma	Ga
Ga	Ri	Sa	Ni	Dha	Pa	Ma

If you want to get the Garisanidhapama in vertical last column of Madhaymagrama how you should start ?You should start not with Magarisanidhapa as said in the text but with Mapadhanisariga.See below .

Ma	Pa	Dha	Ni	Sa	Ri	Ga
Ga	Ma	Pa	Dha	Ni	Sa	Ri
Ri	Ga	Ma	Pa	Dha	Ni	Sa
Sa	Ri	Ga	Ma	Pa	Dha	Ni
Ni	Sa	Ri	Ga	Ma	Pa	Dha
Dha	Ni	Sa	Ri	Ga	Ma	Pa
Pa	Dha	Ni	Sa	Ri	Ga	Ma

Note that in this from the 4th column onwards (sarigamapadhani) the order repeats the first four lines of shadjagrama and only the first 3 lines are different in order . But in the madhyamagrama which is said by Mathanga ,to start with as magarisanidhapa ,we do not get this sequence at all. But we do get the avarohana sequence sanidhapamagari in 5th line . Thus both arohana and avarohana sequences are meant when Mathanga use Madhyama to start with magarisanidhapa and to end with garisanidhapama. For each swara one can make sampoornamurchana like this . Thus 14 sampoornamurchana in 2 gramas can be drawn (and sung) differently .

Shadjagramamurchanamandalam has to have a reverse order of sarigamapadhani starting from nidhapamagarisa and madhyamagramamurchanamandalam should have a garisanidhapama like that . We will see how that is constructed .

Ni	Dha	Pa	Ma	Ga	Ri	Sa
Sa	Ni	Dha	Pa	Ma	Ga	Ri
Ri	Sa	Ni	Dha	Pa	Ma	Ga
Ga	Ri	Sa	Ni	Dha	Pa	Ma
Ma	Ga	Ri	Sa	Ni	Dha	Pa
Pa	Ma	Ga	Ri	Sa	Ni	Dha
Dha	Pa	Ma	Ga	Ri	Sa	Ni

Ga	Ri	Sa	Ni	Dha	Pa	Ma
Ma	Ga	Ri	Sa	Ni	Dha	Pa
Pa	Ma	Ga	Ri	Sa	Ni	Dha
Dha	Pa	Ma	Ga	Ri	Sa	Ni
Ni	Dha	Pa	Ma	Ga	Ri	Sa
Sa	Ni	Dha	Pa	Ma	Ga	Ri
Ri	Sa	Ni	Dha	Pa	Ma	Ga

Thus what we are getting is a magical square just as in cosmic mandala . The magical squares of Indian mathematics have the style of this singing pattern .

Anuchedam 39

Evam thaavadubhayagramikrichathurdasa

Murchanaa:sampoornaa:kathithaa:

Sl 93 *Idaaneem thaasaam naamaaani kathyanthe*
Shadje chotharamandraa syanishade rajani smrithaa
Dhaivathe chotharaa gneyaa
Sudhashadjaa cha panchame

In both the gramas a total of 14 sampoorna murchana are thus said. Now the nomenclature of the 14 murchana. In shadjagrama it is utharamandra and that is called rajani in nishada, uthara in dhaivatha and sudhashadja in panchama.

Sl 94. *Madhyame matsari gneya gandhare chaswakranthikaa*
Rishabhena ch avijneyaa sapthami chaabhirudgathaa

In madhyama it is Matsari, in Gandhara Aswakranthika, in rishabha the sapthami (7th) is called Abhirudgatha.

Sl 95. *Shadjagramasrithaathwevam vijneyaa: sapthamurchana:*
Atha: param pravakshyami madhyagramamurchana:

Thus the 7 murchana of shadjagrama are named. Now we will name the murchana of madhyagrama.

Sl 96. *Madhyamena cha souveeri gandhare harinaswikaa*
Syaath kalopanathaa chaiva rishabenaiva murchana

In Madhyama souveeri, in gandhara Harinaswika, in Rishabha kalopanatha .

Sl 97. *Sudhamadhyathu shadje saannishade chaiva margikaa*
Pouravi dhaivathe gneyaa rishyaka panchme thathaa.

In shadja sudhamadhyam, in Nishada margika, in dhaivatha pouravi and in panchami Rishyaka.

Sl 98 *Ithi thavanmayaa prokthaa madhyagramamurchana:*
Idaaneem sampravikshyami shadavouduva murchana:

Thus the murchana of madhyagrama are named. Now we will speak of shadava and ouduva murchana. (about these 14 murchana we will see again in the closing 2 anuchedas of this section)

Sl 99 *Shadswaraa shaadavaa gneyaa ouduvaa panchabhi: swarai:*
Shaadavouduvithaanaam cha vyuthpathischa nigadyathe

For shadava murchana only 6 swara and for Oudava only 5 swara are there . Now I will tell the origin (etymology or Niruktha) of these words

Anucheda 40 *Shadswaraa avanthi rakshanthe ye the shadavaswaraam tehshaam*
Prayoga: shadava: karakaadi thch pratyaya:

That which has protection of 6 swara and its prayoga (singing) is shadava. In the grammatic sense this added with ch as karaka gets the form Shadvidha .

Anucheda 41 *Udavo nakshathraani gachanthi yasminnakaase*
Thadaakaasam ouduvam .

Thena panchasamkhyalakshyathe

Panchamam hi mahabhootham thathsthaa samkhyaa

Cha vidyathe yasya thad ouduvitham

The visible part of sky where we see the fixed stars moving, is called akaasa. But Ouduva means five. Akasa is the fifth one above from earth when we consider panchabhootha. The five elements are within the sky. Therefore Uduvitha means whatever is within the akaasa made of five elements.

Commenatary: This naturally gives a special meaning to shadava and sampoorana. The shadava has a 6th dimension if oudava has 5 dimensions. Shadava is that which is beyond visible universe and stars from a earthly observer. Then sampoorana becomes that with a 7th dimension beyond even maharloka and includes multiverses beyond our limited universe and its knowledge. If a singer thus finds the importance of sampoorana (melakartha) raaga and sings them properly it is like he/she is entitled to have done a 100 aswamedha and equal to an Indra on earth. Brahmana who sings samagana for 100 yajna usually achieved this but a singer need not do such elaborate sacrifices, and can attain what a brahmana has achieved by singing 72 sampoornaraga and become a Sathakrathu/sathakarni/sathamakha alias an Indra on earth. But not many have attained this.

Sl 100 Shadavam nashtaswaram gneyam lakshanam sapthadha matham

Ekonapanchasath samkhyaa thagneyam geethavedibhi:

Shadava has 6 swara. One swara (Indra) minus is the shadava thus depicting the maruthgana. It is described in 7 ways. The total number is 49 according to the scholars of music.

Sl101 Panchaswaram ouduvitham panchadhaa lakshanam smritham

Panchathrimsascha samkhyam hi acharyair yadudaahritham

Oduvitha has 5 swara. The lakshana are also of 5 types. Teachers have decided 35 types of ouduvitha.

Anuchedam 42. Shadjarshabha: panchamanishadai: shadja

Gramikaa: shaadavaa: shadjarshabha-

Gandharairheenaa madhyamagrame shadava:

If we avoid shadja, rishabha, panchama and nishada we will get shadavamurchana of shadavagrama. Shadjam, rishabham and gandaram if avoided it is shadava murchana of panchamagrama.

Anuchedam 43. Samvadi lopaadouduvithathwam ithi

Vachanaath samvadi swaraabhyamouduvithathwam

Praaptham ithi praayikam

Kadachith anuvadiswaraabhyam ouduvitham

Bhavathi eva, yathaa pancharshabhayo:

Shadjagrame madhyamagrame dhaivatharshabhayorithi

When 2 samvadi swara are removed one gets oudhava. That naturally shows that law of getting oudava is by removal of 2 samvadi .But by avoiding 2 anuvadi also this can be achieved .This also is a general law.By removing panchamarishabha from shadjagrama and dhaivatharishabha from madhyamagrama one gets the state of anuvadi .

Sl 102 *Panchamashadjaviheenaa dwisruthikaabhyaam thathaa viheenaascha Panchamarishabhaviheenaaschouduvithaa bhavanthi shadjagrame*

In shadjagrama panchamashadja and 2 swaras with two sruthi each(Gandhara and nishada) and panchamarishabha if removed ,it becomes ouduvitha .

Sl 103 *panchaswarakaasthaana bhavanthi khalu madhyamagrame*

In panchaswaraka of madhyamagrama (in that thaanam) dhaivatha,rishabha,nishadha,and gandhara sruthi are thus avoided for making oudava.

Anucheda 44 *Idaaneem ethadeva prastharena darsayathi .Thadyathaa.*

All these will be explained with the expansion(prasthara) of these rules.

Commentary:Prasthara is done on a paper with drawings as I do here for teaching .But the real demonstration is not on paper but with singing itself with demonstarion on instruments which is what we call the oral tradition or sruthi.Veda and music can only be known with sruthi /oral teaching .All other systems of knowledge one can depend upon books .

Anuchedam 45 *Nanu murchanaathanayo:ko bheda:? Uchyathe*

Murchanathanayornarthantharathwam ithi visakhila:

Ethachaasangatham samgrahasloke thu murchanaathanayorbhedasya

Prathipadithathwath thath katham ?

Arohaavarohakramayuktha:swarasamudaayo:

Thaanaanaam yajnanaamaani

Adhunaa thaanaanaam yajnanamaani kathyathe

What is the difference between murchana and thaana? I will tell .Visakhilan says there is no difference between the meaning of murchana and thaana.It is true.Because the difference between them is shown by the summary sloka .How ? Murchana is the bringing out of the swarasamudaya(a group of swara) in both arohana(ascending and avarohana(descending) order.But in Thanam only its arohakrama(ascending scale) is given.

The names of thaana are the same as names of yajna.Now we will enumerate the names of thaana.

Commentary: Thus it is clear that thaana is the body of the raaga and only the ascending scale is given and the descending scales are understood from that.And from that understanding one has to bring out the raaga by actual singing ,by both ascending and descending notes and creating moorchana or a state of unconscious/superconscious ecstasy in listeners .It is the real prayoga of a scale or body of structure .

The names of Thaana or scales are all same as that of yajna or sacrifice.This is a significant factor.If one knows a sacrifice ,it is not enough.One has to do it to get the

effect. The same is applicable to the thaana. The mere knowing of the structure is not enough. One has to bring it out and enchant the listeners.

The singer who brings out such enchanting music is causing murchana of entire creation. Murchana is another name for Sammohanam (anaesthetizing) and removing all pains – physical, mental or intellectual. Krishna is called Mohan or Jaganmohan due to his feat of producing all murchanas and taking pasu, pakshi and human into a state of painless ecstasy and Vishnusakthi is also called Mohini due to this effect. The saying of Krishna that I am saamaveda among Vedas has to be understood in this way. And the fact that Vishnu is yajnaswaroopa means all the yajna as Thaanaswaroopa rests within him and is awakened from it for creating a state of ecstasy of the three worlds. When I say that a singer becomes Sathakrathu by singing all 72 Melakarthaaraaga, this has to be understood.

Sl 104

Agnishtomolatyagnishtomo

Vajapeyolatha shodasi

Pundareekolaswamedhascha

Rajasuyascha sapthama:

Ithi shadjaheenashaadavathaanaanaamaani

The shadavathaana without shadjaswara are 7 and they are agnishtomam, atyagnishtomam, vajapeyam, shodasi, pundareekam, aswamedham and rajasoooyam.

Sl 105 *Swishtakrid Bahusouvarno*

Gosavaswamahavratha:

Viswajith brahmayajnascha

Prajapatyasthathaiva cha

Ithi rishabhaheena shaadavathaana naamaani

The rishabharahitha 7 shadavathana are as follows:

Swishtakrith, Bahusouvarnam, Gosavam, Mahavratham, Viswajith, Brahmayajnam, Prajapatyam

Sl 106. *Aswakrantho rathakrantho*

Vishnukranthasthathaiva cha:

Suryakrantho gajakrantho

Balibhinna gayajnak:

The 7 shadavathana without panchama are : Aswakrantha, Rathakrantha, Vishnukrantha, Suryakrantha, Gajakrantha, Balibhinna and Naagayajnaka.

Sl 107 *Chathurmasyolatha samsthaallkhy:*

Sasthraschaivokthakasthatha

Southraamanischa chithra cha

Udbhidyagascha sapthama:

Ithi nishadaheena shadavathaanaanaani

Chathurmasyam, Samsthaa, Saasthram, Ukthakam, Southramani, Chithra, and Udbhidyaaga are without Nishada.

Ithi shadjagrame shaadavathananaamaani ashtaavimsathy:
Thus the 28 shadavathana of shadjagrama are described.

Sl 108
Savithri chardhasavithri
Sarvathobhadra eva cha
Adityaanaam ayanascha gavaam ayananamaka:
Sarpaanaam ayana:shashta:
Sapthama:kounapaayana:
Ithi madhyamagrama shadjaheenathananaamaani

Savithri, ardhasavithri, sarvathobhadra, Adityaayanam, Gavaayanam, sarpayanam, and kounapaayanam (of beings with a canine) are the 7 madhyamagrama thana without shadja swara.

Sl 109
Agnichithdwadasaahascha
Upamsu :soma eva cha
Aswapathrigraha
Barhisthatha alabhyudaya ityapi
Ithi rishabhaheenathananaamaani

The 7 thana without rishabha in madhyamagrama are : Agnichithi, Dwadasaham, Upamsu, Somayagam, Aswapathigraham, Barhi, and abhyudaya.

Sl 110.
Sarvaswadaakshino deeksho soma:
Samidha samgnaka:
Swaahaakaarasthanoonapath
Thatho godohanasthathaa
Ithi gandhararahithasthana naamaani

7 thaana without gandhara swara in madhyamagrama: Sarvaswadaakshina, deeksha, soma, samidha, swaahaakaara, Thanunapath, Godohanam.

Ithi madhyamagrama ekavimsathi :shadavathananaamaani
Ityevam ubhayagraamaasrithaane konapanchasa
Thaananaamaani

Thus the shadavathana of madhyamagrama are said. The total of the shadjamadhyamagrama thus enumerated are 49 (being 28 + 21)

Sl 111 *Idaa purushamedhascha shyeno*
Vraja ishusthathaa
Angiraa:kankasamgnascha

Shadjagramelapi chouduvaa:

Ithi shadjapanchamaheenathananaamaani

Ida,Purushamedha,Shyena,Vajra,Ishu,Anghira,are the ouduvathana of shadjagrama from which hshadja and panchama swara are omitted .

Sl 112 *Agnishtomolatha dasascha*

Naandee vai pournamasika:

Aswapathigraha thathrasthathaa

Soubharako matha:

Ithi gndharanishadaheena thaanaanaamaani

The thaana without gandhara and nishada are agnishtoma, darsa, nandi ,pournamasika, rathri,soubharaka .

Sl 111 *Soubhagyakrincha kaareeri*

Shanthikrith pushtikrith thadhaa

Vainatheya bhavedeva

Uchatanavaseekrithou

Ithi shadjagrama ouduvitha

Thaanaanaamaani ekavimsathi

The thana without panchama and rishabha are soubhagyakrith, kaareeri, shanthikrith, pushtikrith,vainatheya,uchatana and vaseekrith .Thus 21 oudava thaana anre named in shadjagrama.

Sl 114 *Thrilokyamohano veera:*

Kandarpabalasaathana:

Samkhachoodo gajachayo

Roudroulasou Vishnuvikrama:

Ithi madhyamagrama dhaivatharishabhaheenouduvitha thaanaanaamaani

The madhyamagrama thaana without dhaivatha and rishabha are : Thrilokyamohana, veera,kandarpabalasaathana,samkhachooda,gajaschaya,Roudra and Vishnuvikrama.

Sl 115 *Bhairava:kaamadaschaivaavabritholashtakapaalaka:*

Swishtakrincha vashatkaara:sapthamo mokshada:smritha:

Ithi madhyamagrama nigraheenouduvithathananaamaani

Ityevam ubhayagramaasrithaani panchathrimsadouduvitha thaananamaani

Without nishadha and gandhara are the Bhairava,kaamada, avabhyatha, ashtakapaalaka, swishtakrith,vashatkara,mokshada.This 14 are the madhyamagrama ouduvithathanana. The total in shadjagrama and madhyamagrama of all ouduvitha thus comprise 35 (21+14).

Anuchadam 46 *Ubhayagramikyouduvitha:panchathrimasath bhavanthi*

Shadavaa ouduvithascah milithwaa chobhaya

In both shadja and madhyamagrama 35 ouduvitha thana are there. The total number of both shadava and ouduvitha thana in both grama is 84

Commentary: As already said, the 49 represents marudgana.

The 14 and 21 (which comprise the 35) are also multiples of 7. And are within the 49 (7 X 7) which is a chathushka or a square in algebraic connotation (see my book for children on easy understanding of algebra – Sudarsanam). The number 84 is vedasamkhya for Sanskrit scholars. By the 84 thana, the vedasamkhya is covered.

The names of thanthric upasana like Thrilokyamohanachakra, bhairava, manmatha etc are also included in the vedic samkhya showing that thanthric structures are inclusion within the vedic structure as the cosmos includes the earth and its creatures too.

Anuchedam 47 Idaneem sadharanakrithaa murchanasthu khyathumaaha

Sadharanaswara nishadagandharavanthou thadaadikrithaasthathraivantharbhoothaa:

Sadharana moorchanaa bhavanthi kutha?

Swarathmakathwaanmoorchanaanaam

Thaanasaadhaaranaathaapi sadharanenaiva gatharthaa

Now I will describe the sommon or sadharanakritha murchana. The sadharana swara are two. The gandhara and the nishada. Whatever begins in these two swara are called sadharana murchana. Gandhara and nishada in their sadharana or common state are Aanthara and Kaakali. How : ? from the very fact that one is included within the other shows that it is common. The word sadharana or common is because it is made common by its commonness.

Commentary: The commonness is because it is a common type of pleasure that is derived by people who are common people. The pleasure in mundane things like sex, luxuries, food and drink etc if excess become common for all biological beings. Such a common inclusion makes any thing common place. This is true of tastes in arts too. Interest in common pleasures and common arts is thus made common by the people who are interested in it. The arts are made sublime by all inclusive wider knowledge and aesthetic sense. Thus the term Gandhara and Nishada were considered for common people with lack of much aesthetic sense or wider range of knowledge among a people who were aesthetically and intellectually superior. But these were also inclusive of the biological ancestral race and thus both common people and rare scholarly people are included in sampoorna scales and by exclusion of one swara or more than one swara one is separating the whole to parts, a sort of separatism and morphological classification for study purposes and not for practical exclusion. It is just for knowledge this classification was used in ancient times.

Sl 116 Ityevam cha mayaa prokthaa murchanaasthu chathurvidhaa

Thus I have explained the 4 types of murchana –

shadjagrama, madhyamagraam, ouduvitha, and sadharanakrith.

Commentary: What is now said is only an introduction by classifying the thaana and giving them a nomenclature corresponding to a yajna indicating that a snger who does

each of these is doing a yajna itself .Now comes the prayoga or actual use of the thaana which is very important .

Anuchedam 48 *Kathameshaam thaanaanaam prayoga:karya ithi cheth?*

Uchyathe-dwividhasthaanaprayoga:

Pravesena nigradena cha

Pravesha rishabhaapekshayaa shadjasyaadhareebhoothasya

lopaneeyasya viprakarsha:

Ithi viprakarshena pravesanam

How should the thaana be practiced ?The answer is: There are 2 types of Thaanaaprayoga .One is called pravesam .The other is called nigradam.Pravesha means by reducing shadja than rishabha or by omitting rishabha .That means one has to reduce shadja and bring it to the position of shadja.This is the pravesaha of shadja in viprakarshaka(reduction).

Mardhavana yatha-thasyaiva shadjasya

Nishadapekshayaa uthareebhoothasya mardhavam

Sithileekaranam nishadaapaadanam ithi

Dwividham pravesanam

When the shadja which is higher than nishada(tharasadja)is made softer or broken down to bring it to the position of Nishada is another form of pravesa .The lower swara to higher and the higher swara to lower ,both is done in pravesa .

Anuchedam 49 *Nigrasthasthantaraswaraparityago samsparsanam*

Prayogasthu yathaa-

Saa saa ga ri paa paa maa ri

Thathaa chaaha Bharatha:

Vividhaa thaana kriyaa thantryaa pravesanam

Nigrasthasthantaraswaraparityago samsparsanam

prakarshaadutharaswaramardhavaadwaa

Nigrastaachaasamsparsa:

Dathilenaapyuktham-Thaanakriyaa dwidaa thanthryaam

Pravesannigrasta thathaa

Praveso dwani saadrusyamasamsparsasthu nigrasta(Dathilam 37)

Nigrasta is when a swara that comes behind is touched or avoided .The prayoga is as saa saa ga ri paa paa maa ri

Bharatha also has said that thanakriya is of 2 types and in string instruments both pravesaha and nigrasta are used.Prakarsham(making bigger) for a low swara and mriduthwa for a higher one (to make softer) is done for this .The nigrasta means asamsprisyatha or untouchability .Two swara becoming untouchable is nigrasta .Dathilam also says:In string instruments for thaana 2 functions exists.Pravesa and nigrasta.The pravesa is to make dwanisadrisya (similarity to the dwani)Nigrasta is untouchability of 2 swara .

Commentary: The message is clear .Either one has to bring the sruthi well harmonized or do not use it at all.This is a law in music.To make each individual in a society to have a harmonious existence is what music is all about.If one is always making a disharmonious

note, avoid it is the second rule. Thus pravesa is inclusion of all notes by making them harmonious with the basic sruthi. The other is to avoid that note which makes a disharmony. (don't touch that note). It is a failure as far as a master musician is concerned (vocalist) since he/she can use all swara in harmony. But string instruments have this problem of disharmonious notes which has to be brought down or up or totally discarded for fear of discordant note. Thus the vivadi is some thing which arise when we use vadya as said earlier.

Asamsparsayoga in musicology is the same as Asparsayoga of Vedantha. This untouchability is not a caste distinction. But a preventive measure to avoid discord. This was especially taken care of when a lady is married to a man. If the two characters have discord and an apasruthi happen between them the harmony of family life is lost and in olden times families being guilds of a particular profession which always functioned co-operatively and harmoniously this had to be avoided. The Indian marriage systems evolved as a result of this. Now we don't follow that and we know how harmonious/disharmonious the relationships are from family courts and number of divorces. It is especially said in scriptures that a woman of high intellect should only be given to a man of high intellect because, otherwise inferiority complex in a man can create problems.

Anuchedam 50

Nanu thrishu sthaaneshu swaraprayoga

Ityuktham kaakuvidhaane.

Thathra katham swarasapthakam avalambhya

Murchanaa kaaryethi ye samserethe thaana pratyaaaha-

Madhyamasapthakena murchananirdeso bhavathi

Mandrathaaarasamsidhyartham kutha?

Madhyamasapthakasyaavinasthathwaadithyartham:

Bharathenaapyuktham-

Madhyamaswarena(vainena)murchanaanirdeso

Bhavathyavinasthathwaanmadhyamasya

Nigrahe parigrahe vaa.

In the organization of kaku there are three positions of swara. In them which of the swarasapthaka(octave) is used as a base for bringing about murchana? For this doubt the answer is given: To exhibit mandra and thaara one has to use sapthakamadhyamam. Because sapthakamadhyama is never destroyed. Bharatha has said: In nigraha either by the destructionless nature or by the acceptance of madhyama, in a string instrument like veena, in madhyamaswara one can exhibit murchana.

Commentary: parigraham or acceptance is also a word for union/marriage. By either partial or complete acceptance of a madhyama swara one can demonstrate murchana in veena. The top and the bottom(mandra and thaara) may be lost (nigraha) by untouchability but the middle is never lost and is always there for generating everything again. Thus the middle or madhyama is accepted for generation of all swaras again from it and this is the reason for biodiversity of swara as well as the races of living things in the equatorial(middle) regions of earth.

Anuchedam 51

*Nanu madhyamasapthakena murchanaanirdesha:
Kriyathe yadi thadaa kim uktham madhyamena
Swarenethi? Satyam uktham
Swarajaatyapekshayaa ekavachanam kandye sware
Murchanaa karyethi bhaava:
Vainagrahanam ch asareere
Apakeerthithasyaapi sthaanasya labhaartham*

Murchanas are first said with sapthamadyama. Then why is not said that it is by madhyamaswara itself ? The truth is that murchana is based on the jaathi of the swara. That is why the adjective vainam was used here. Only in a veena we can point out the sthaana. In a human body this is not possible.

Commentary: Here Mathanga has said clearly that the use of veena is to demonstrate the position of swara, which is not demonstrable by a human body in which madhyama is in the middle of body which has to be felt and not seen. The creation of a veena in the model of a human body and then demonstration on it how and where in a corresponding human body the swaras are created is thus clear. The Daaruveena (wooden veena) is the model of a Gathraveena (Body veena) for lecture demonstration.

Anuchedam 52

*Nanu shadavouduvithe kriyamaane
Murchanaa pratyabhignanamasthi vaa
Na vaa? Astyeva murchanaa
Pratyabhignanam ithi
Thathaa chaaha Dathila:
Evam krithe pi thanathwe ganayithwaa vinasinam
Vidwaanethaavathithyeshaa
Murchanethyavadharayeth*

When the function of shadava and oudava has already started, is there agreement of murchana or not ? The continued remembrance (pratyabhignana) is always there, undoubtedly. Dathila also has said that. If a said swara is avoided and you create a new thaanam, one has to know the swara and the cognition of murchana is essential for such creations.

Commentary: People say we have created a new raga or thaana. Actually it is not a new creation, but a new remembrance of an old one only. Because all raaga, all swara exist in spacetime continuum and the recreation is only a continued remembrance of what was there already. This is exactly what the Pratyabhignapadhathi of Kashmiri Saivism has adopted from Sankara's teachings and this is the Pragnaparamitha as prathibha in Indian aesthetics, in Vishnubhagavatha and in Nagarjuna's pragnaparamitha. Thus a major part of Indian philosophy is demonstrated by a musical repertoire by Mathanga and he was an ancestor of Sabari, in Guruparampara. And hence an adivasi and not a person who came from any distant lands as an invader or a foreigner. Indian music evolved here from ancestors of Mathanga as he himself has said in the treatise and so is Indian philosophy as mentioned above. To mistake that veda were brought here from foreign lands is as foolish as believing that a rabbit has horns.

Anuchedam 53

Manu prathamaayaam sapthamyaam cha murchanaayaam

Shadje lupthe rigamapadhaneethi

Ekam evam roopam bhavathi thathra na gnaayathe

Visesha:satyam ,bhedo nasthi

Vasthuganane punarastyeva bheda:

Mandratharakritho bheda:

From first and 7th murchana avoiding shadja both become equal and have Rigamapadhani .Then their difference is not felt .But ,yet the two has difference .The difference is due to mandra and thaara states then.

Anuchedam 54

Idam thu prayokthru srothru sukhartham eva

Murchanaa thaanaanyatwam uktham

Prayojanam api thristhaanapraptyartham ityuktham

This use is for the sukham (happiness/pleasure) of both the singer (prayoktha) and the listener(srothru) .The purpose of thaana is to get the three sthaana easily

Commentary: By tehse 2 anucheda Mathanga tells us precisely how the omission of one swara can make the two (1st and 7th) murchana look like same as far as swara is concerned but still is different as far as the high and the low note is concerned and that is the sruthi is different .And he tells us this technique makes it possible for the singer and listener to easily understand the prayoga and the change or difference of the three stana(the thristhayi) of the swara as a group.That is the sapthaswara as three positions making the 21 to 22 sruthi which we employ in musical repertoire to make all raagaas possible.The reason why a instrument like veena with strings is made in model of human body is to demonstrate the three positions of thaara,mandra and middle .A gathraveena in a middle tuned position can easily go up and down and produce all the swaras but a gathraveena in a base sruthi or a top sruthi cannot get that much range.That is why the singers bring out the swara from the naabhi(middle) and go up and down at all 3 sthayi easily .

Anuchedam 55

Nanu murchanaasthavajjaathiraageshupayoginya-

Ithi yuktham thaasaam kathanam

Thaanaasthu kuthropayujyanthe? Uchyathe

Dwayorgraamayajeethiraagaanyathwa

Prathipaadanartham prayogasthaanaanaam.

Yadwaa nashtodhishta samkhyasidhyartham prayogasthaanaanaam

In jaathi and raaga ,murchana are useful and hence their prayoga is logical.But where are the thaana used ?It is said: Thana is useful for differentiating the jaathi and graama in the two graanmaas.For finding out the number of lost and needed (nashtam,udhishtam) also thaana is needed.

Commentary: Nashta and udhishta are two terms we always come across in Indian astronomy .To find out a lost star/planetary position etc is Nashta calculation.To predict something is Udhishta calculation.That is in music too the same purpose is served by

Thaana and it is a mathematical model by which we know where the lost number is and what it is as well as predicting that the number will come at such and such a place and at such and such a time and hence this is the basics of entire raaga music .In other words the mathematical rediscovery and the predictions of a new music is from thaana or the body structure /as scale provided .

Anuchedam 56 *Kootathaanaanaam sahasraani*
Panchathrayasthrimsad adhikaani nishpadyathe
Dathilenaapyuktham
Poornaa:panchasahasraani
Thrayasthrimsacha samkhyayaa
Kathayanthi prathigramam upaayo
Gananeladhunaa

The total number of kutathana is 5033.Dathilam has said: There are 5044 poornathaana. (Dathilam 39) and that number is from this rule.

Commentary (In anuchedam 57 this is further explained .)

Gananaalathra parena thaana prayogena
Poorvasthaanaprayogo hanyathe thathaa chaaha
Dathila: "Hanyaadanantharayena poorna yasya kramothkramaath
Gunakarasamaasthathra kramaa:seshaa:syuruthkramaa:

The determination of the number is as follows: Multiply the first thana with the next ones.Dathila also said to multiply the previous number of thaana with the next .No swara in thaana should be avoided in this process.Then we will get the number in order.(krama) and we will know how the uthkrama(disorder /chaos)happened.By multiplication the total number obtained is the orderly thaana(kramathaana) and it will be equal to the gunakara and the rest will be uthkrama or disorderly .

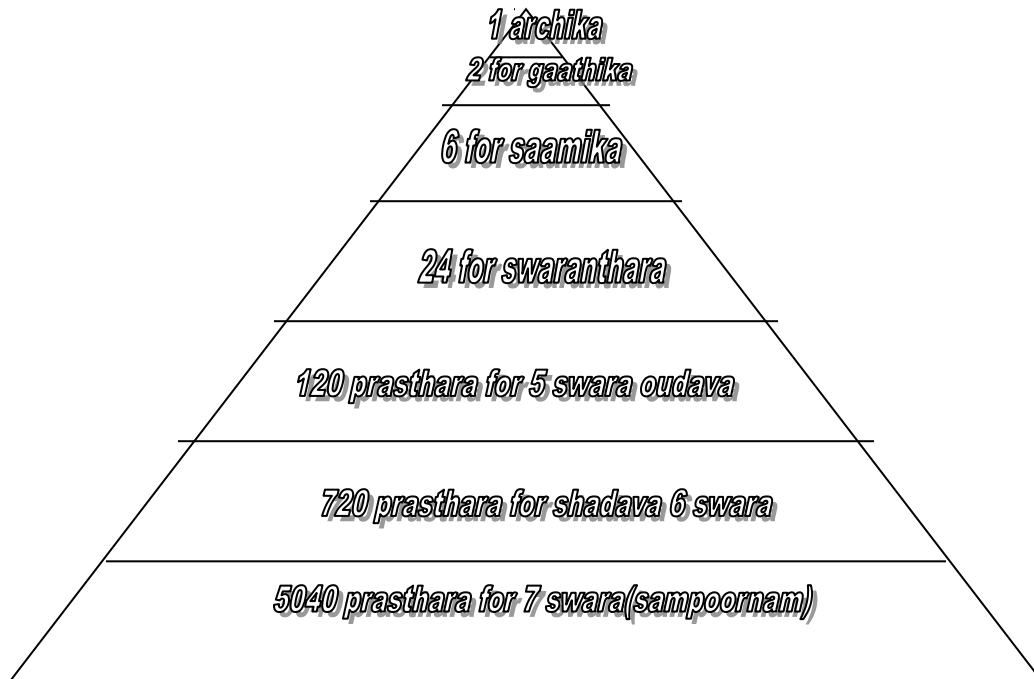
Anuchedam 57
Idaaneem gunanopaayam kathayathi
Dwaabhyaam paraabhyaam eka:poorvo hanyatha
Dwaaveva bhavatha:thou cha dwouthribhir
Hathou shad bhavatha:the cha shad
Chathur hathaa chathurvimsathi :panchabhirhathaa
Satham vimsathi adhikam bhavathi
Vimsathi adhikam satham shadbhirhatham
Sathaani sapthavimsathi adhikaani
Bhavathi thaani sapthabhirhathaaani
Panchasahasraani chathwaarimsadhikaani bhavanthi

The method of multiplication is here explained further.One swara of the previous first thaana is multiplied by the second swara of the second thaana.Then you get the number 2.Then that 2 is multiplied by the next 3rd swara number of next thana.Then 6 is obtained.That 6 is multiplied by next 4th swara to get 24.24 is next multiplied with next swara number 5 and we get 120.120 is then multiplied with next number 6 to get 720 .Then 720 is multiplied with next number 7 to get 5040.

Commentary :

$1 \times 2 = 2$
 $2 \times 3 = 6$
 $6 \times 4 = 24$
 $24 \times 5 = 120$
 $120 \times 6 = 720$
 $720 \times 7 = 5040$

This can be drawn as below as a khandameru (Partial pyramid). Note that it is from this ancient Indian Khandameru that Pascal derived his famous triangle.



That means when we are using the sampoornaswara as in the case of Melakartha raga, we can actually do expansion into 5040 raagas and when we are using only 6 swaras (shadava) we can expand upto 720 raagas (which is melakarta number 72×10). This pyramid of numbers is called Khandameru. 5040 sampoornathana can be used in 72 melakarta raga prayoga and all other prayoga are within that (included) and hence if a musician is able to do its prasthara he/she has conquered all the other thana prayoga and raaga prayoga as well and not many have conquered that in recent times.

Sri Krishna had conquered it in BC 3200. How?

$5040 \times 3200 = 16128000$

Making its decimal place as 1.6128 we get the Suvarnaniyama of Thripurasundari (Thrailokyamohana). From 16128 reduce 120 we get 16008 which is the raagini number Krishna invoked during his life time.

When Krishna made Pareekshith regain life (after being killed by the Brahmashtra of Aswathama) he said: "If my words that I had been a Naishtika Brahmachari throughout my life is truth, let this embryo regain his life with my power of Thapas" and the boy came back to life. Vyasa says this with a specific message to tell us that the raagini of Krishna are not women as the ordinary people think them to be. I have heard some famous singers say that I too am a Krishna because many women are forgetting

everything when I sing .But they have missed the entire message of Vyasa.They are partial Krishnas who are able to bring out a maximum of 200 or 300 raagaas in their entire lifetime and to compare themselves to the Krishna who brought out 16008 beautiful raaginis from his repertoire is foolishness only .

Anuchedam 58

Thathrakramakrithaasthansthaan sphotayithwaa

Hyuthkramakrithaani kootathaanaanaam sapthaswaraprayogath

Panchasahasraani thrayathrimisathadhikaaani bhavanthi

Prasthaaro yathaa thathra shadja swarasya sa ithyeka:krama:

Rishabhasya sareethyeka eva krama:

Risa ithi cha vyuthkramo dwitheeya:gandharasya sa ri getyeka:krama:garisetyaadayo

Vyuthkrama:pancha.Garisa garisa rigasa rigasa sagari ithi vyuthkramena

Kootathaanaa:pancha.Thadevam Gandharasya shad thaanaa:

From the 5040 thus obtained,minus or subtract the 7 swara which occur in order (krama) so that the real number of kootathaana number is for 7 swara is 5033 .

Prasthaara is as follows:

Adding rishabha to shadja is one krama or order. We get Saa rii

Then its vyuthkrama or reverse order .That is rii saa

To saari when we add gandhara in reverse order we get 5 .

These are garisa, gasari, rigasa,risaga and sagari.These are the 6 thaana of the gandhara.

Now we will see that of madhyama.

Evam madhyamasya sarigamethyeka:krama:

Magarisetyevam aadayasthrayovimsathiruthkramaa:

Thad yathaa-magarisa,magasari,sarigama,marisaga,masagari,masariga

Ithi madhyamapoovaa :shad thaanaa: vyuthkramakrithaa:

Evam gandhararshabha shadjaanaam

Pratyekam shad thaanaa bhavanthi milithwaa

Chathurvimsathirbhavanthi

The only order for madhyama is sarigama.But starting from magariisa there are 23 uthkrama .

Magarisa

Magasari

Marigasa

Marisaga

Masagari

Masariga are the 6 thaana which starts from madhyama in uthkrama . Each starts with gandhara,rishabha or shadja.Thus a total of 24 is there for madhayma.

Evam panchamasya sarigama pratyeka

Eva krama: pamagarisa ityadi vyuthkrama

Kutathaanaanaam satham ekonavimsathir bhavanthi

Thad yathaa –sarigamapa,

Pamagarisa .

Pamagarisaanaam pratyekam chathurvimsathirbhavanthi ,milithwaa vimsathyadhikam

Satham bhavathi ,evam dhaivathasya sarigamapadhetyeka:krama:

Dhapamagarisethi vyuthkrama:dhapamagarisaanaam pratyekam vimsatyadhikam

Satham bhavathi ,milithwaa sapthasathaani vimsathyadhikaani bhavanthi.

Evam nishadasyaapi sarigamapadthaneetyeka:krama:

Nidhapamagari sethi vyuthkrama:

Nidhapamagarisaanaam pratyekam sapthasathaani

Vimsathyadhikaani bhavanthi ,milithwaa

Panchasahasraani chathwaarimsath bhavanthi

Like this there is only one order(krama) that start with panchama.Kootathana that startwith pamagarisa are 119 in vyuthkrama.They are from the 24 different forms like sarigamapa, pamagarisa,and 24 from each of the swara of pamagarisa.Thus total 119.There is another krama that starts in dhaivatah.sarigamapadha,dhapamagarisa.This is in Vyuthkrama style.From each of dhapamagarisa in vyuthkrama 120 kootathaana occur.Thus total 720 kootathaana happen.In nishada there is the order sarigamapadhani,nidhapamagarisa .nidhapamagarisa as vyuthkrama has for each of the swara 720 kootathaana based forms ,so that the total is $720 \times 7 = 5040$

Reducing the 20 (except sa and pa) sruthis which are the initial ones we get 5020 total .
Commentary: The basic is 5040.In the first instance the reduction was 7 swara to get a total of 5033 and here the reduction of 20 of the 22 sruthi(except the fixed sa and pa) to get 5020 only .

Note that the difference is in the first case 7 and in second case 20 and if we subtract these two $20 - 7 = 13$ is the real difference .

That is ,when we mark a koshta of 7 swara we have to draw 8 lines(an octave) and similarly when we mark a koshta of 12 sthana for swara we have to draw 13 lines .

Each of the path (orbits) or Veethi in a koshta is +1 of the swara number.The swaranthara with 4 swara has 5 lines drawn .And so on.

Anuchedam 59

Thadevam etheshaam swaraanaam thaanaavidhaanam

Shatshashti thanthryaam sathathanthryaam chopalabhyathe

Thayo :swamaanaani madhyamaadeeni

The organization of tehthaana or body of the swara can be demonstrated and experienced using a string instrument with either 66 strings or 100 strings .These two instruments (with 66 strings called shadshashtithanthri and with 100 strings called sathathanthri) have their own measurements (swamaanam) in madhyama (middle).

Thatra kootathaanaabhedapradarsanam iha na

Krithamathi prasanga nivrityartham

Ethenaiva kramena budhimadbhi:

Swayam eva lakshaneeyam ithi

In these string instruments all these kootathaana are not demonstrated because of the problem of confusing the student by changing the subject.If a intelligent person understand this functioning order of the instrument the other details will be cognized by him/her even without saying .

Sathathanthri yazh or veena with 100 strings is explained in sangam literature before Christ and it is also mentioned in Chandogya upanishad (a part of Samaveda) showing its antiquity in India .(see Sudhasindhu from DC Books and Ragachikitsamritham from DC Books for the details) .

Anuchedam 60

Thadeshaam thaanaanaam prayojanam

Sthaanam pratyartham uktham sthaanaani

Threenyukthaani kaakuvidhou vyasthaani

Shadshashtim vidyaan mantraadi sidhaye

Thasmaad yadkinchid geeyathe thanmadhyamadhwanivisesham

Kantadwanibhirmandrathaaravyavasthaa sidhyartham eva

Chathurvidhaa mayaa prokthaa murchanaa :sapthaswaraathmikaa:

The aim of the use of tehse thaana is to get the positions. According to the law of Kaaku there are three sthaana or positions. When we consider them specifically it is 66 for mandra etc .Mandra is the lowermost note .Thaara is the highest note. And this is produced by effort in singing .All these are started from the madhyamaswara or dwani so that entire range is reached .

Thus I have explained the four types of murchana out of the 7 swara .

What is a Kaaku ?

To understand this one has to go back to the 10 praana or life of Thaalam based on aksharakaala which is based on the unit of akshara and unit time taken to utter a akshara . The 10 prana of rhythms are kaalam(time),Margam(the method of applying time to a song),kriya(a particular hand movement to keep time),angam(organ or combination of all types of hand movements or units of timing or the kriya in specific sequences),graham (a point at which the thaalam commences in relation to singing of the lyric)jaathi(the 5 different counts assigned to a particular kriya called laghu)kala(consisting of the number of short letters for each of the kriya during a beat)yathi(the way different kriya give different shapes to structure of thaalam by the stopping or breaking in between)prasthaaram(the way different kriya give different shapes to structure of thaalam) .The prasthaara is of academic interest only ,says the karnatic music tutor software (the beauty of karnatic music) .But it is not so .It is the base of everything in karnatic music. Suppose we have 8 letters in a vocal rendering (or just take the sarigamapadhanisa) any sounds with 8 letters in it . We can arrange them in 6 ways .

1. One Guru the symbol of which is 8 (8 units) and it is also called 2 chathurasralaghu
2. two laghu .symbol is 11 which means 4 +4
3. one laghu 2 drutham written as 100 in which 1 is 4 and 0 is 2 (4+2+2). This is thriputa
4. one laghu, 1 drutham, 2 anudrutham =4+2+1+1 or 1011 (a dhruvam)
5. 4 drutham 2+2+2+2 (0000)
6. eight anudrutahm 1+1+1+1+1+1+1+1 (write U eight times) and there are 14 ways of recokening these 6 forms .

dhruvam is 1011

matyam is 101

rupakam is 01

jampa is 1u0(u for anudrutham instead of 1)

thriputa is 100

ata is 1100

ekathalam is 1

these 7 use 5 types of or jaathi of laghu. They are called- Thisrajatahi (3 aksharakalam) chathurasrajathi(4 aksharakalam)khandajathi(5 aksharakalam)misrajathi(6 aksharakala)samkeernajathi(9 aksharakala) making a total of $7 \times 5 = 35$ thaalam .

two terms are also used called Plutham which is 12 units of time and kaakapaadam or kaaku (†) which means 16 units or 4 chathurasralaghu .This 16 and 12 mandalas are important for us and are not of mere academic interest and for IVC and Harappan people these were basic requirements for their calculations.It is also important to understand that the jaathi change only the laghu while the Gathi(kinetics) or Nada change the sarvaanga(all anga or organs) of a thaaala and they are thus different from the changing of mere jaathi /by laghu. They are also termed with the same nomenclature but- thisragathi,chathurasragathi,khandagathi,misragathi,samkeernagathi .

so kaaaku or kaakapaada is for the thaalam/rhythm and its gathi with 12 and then 16 aksharakala etc .Only then we can reach the $16 \times 16 = 256$ aksharakala we use in panchari etc .The next explanation is for 12 swaramurchana.

Sl 117 *Idaaneem thu pravakshyami dwadasaswaramurchana:*

Now we will speak of the 12 swaramurchana.

Anuchedam 61

Thathra murchana nirdesa:sthaanathrithaya

Praptyartham ithi vachanaath

Mandrathaarasidhyartham ithi vachanaacha dwadasa swarasampanna

Murchanaa drashtavyaa :prayogakale

Thathaa chaaha kohala:

Yojaniyo budhair nityam kramo lakshyanusaratha:

Samsthaapya murchanaam jaathiraaga bhaashaadisidhaye

Nandikeswarenaapyuktham

Dwadasaswarasampannaa gnaathavyaa murchanaa budhai:

Jaathibhaashaadi sidhyartham thaaramandraaadi sidhaye

To get the three positions we are using murchana and also for the attaining of mandra and thaara .Therefore in actual practice it is a combination of 12 swara .Kohala also has said. After fixing the murchana ,according to our goal the swara and raaga etc have to be made orderly by 12 swara in a definite order .Nandikeswara opined : To get jaathi and bhaasha ,the thaara and mandra etc 12 swara as murchana has to be formed.

Anuchedam 62

Yadyapyaachaaryai: sapthaswaramurchanaa:

Prathipaadithaa:sthaana thrithaya praptyartham

Dwadasaswaraaireva murchanaa: prayukthaa:

Anyathaa choksha shaaadave rimaa ithy

Prayogo na syaad

Evam cha sathi sa raaga: sidho na syaath

Teachers have described about the murhana with seven swara. But for getting the three positions one has to use 12 swara murchana. In Chokshashadava (sudha shadava), otherwise the use of Rima will not happen. Thus that raaga (sudhashadava) will become extinct.

Commentary: Just as a race becoming extinct, the teachers are speaking about extinction of raaga also is noteworthy. If a particular sequence of swara (gene) does not happen a particular character is lost and hence a particular race (raaga) is extinct.

Shadjeejathou Rigamadhani prayogasthaaramandrako na syad

Anyeshaam apiraagaanaam nasamkara:

Prayoga: syad. Thena sarigama padhanyaadya murchanaa

Dhanisarigamapaadyaa: thadyathaa

Rigamadhani when used in shadja jaathi, they will not be in thaara or mandra. Thus even other raaga prayoga will become extinct. Therefore the 12 swara murchana has to start from sarigamapadhani in that order. It is as below:

- 1 Utharamandra . Dhanisarigamapadanisariga
2. Rajani . Nisarigamapadhanisarigama
3. Utharayatah. Sarigamapadhanisarigamapa
4. Sudhashadja Rigamapadhanisarigamapadha
5. Matsarikritah. Gamapadhanisarigamapadhani
6. Aswakrantah. Mapadhanisarigamapadhanisa
7. Abhirudratha . Padhanisarigamapadhanisari

This is in shadjagrama.

Commentary: This is shown as below:

Dha	Ni	Sa	Ri	Ga	Ma	Pa	Dha	Ni	Sa	Ri	Ga
Ni	Sa	Ri	Ga	Ma	Pa	Dha	Ni	Sa	Ri	Ga	ma
Sa	Ri	Ga	Ma	Pa	Dha	Ni	Sa	Ri	Ga	Ma	Pa
Ri	Ga	Ma	Pa	Dha	Ni	Sa	Ri	Ga	Ma	Pa	Dha
Ga	Ma	Pa	Dha	Ni	Sa	Ri	Ga	Ma	Pa	Dha	Ni
Ma	Pa	Dha	Ni	Sa	Ri	Ga	Ma	Pa	Dha	Ni	Sa
Pa	Dha	Ni	Sa	Ri	Ga	Ma	Pa	Dha	Ni	Sa	Ri

Anuchedam 63 Madhyamagramepi eva mapadhanisarigaadyaa

Murchanaa nisarigamapadhaadhyaa: raagakaale

Dwadasa swaramurchanaa avaganthavyaa:

Thacha shadjagrama(?)

Murchanaasu anthargathaa gneyaa: Thadyathaa –ithi

Madhyamagrama

Ithi gramamurcharchanaa prakaranam

In Madhyamagrama also it is like this. The 12 swara starting from mapadhanisariga as murchana in order form nisarigamapadha etc.. In the exhibition of the raaga the murchana are known to have 12 swara. They are also known as the murchana of shadjagrama.

1. Souviri Nisarigamapadhanisarigama
2. Harinaswa Sarigamapadhanisarigamapaa
3. Kalopanatha. Rigamapadhanisarigamapadha
4. Sudhamadhyama Gamapadhanisarigamapadhani
5. Margi .Mapadhanisarigamapadhanisa
6. Pouravi. Padhanisarigamapadhanisari
7. Hrishyaka. Dhanisarigamapadhanisariga

Ni	Sa	Ri	Ga	Ma	Pa	Dha	Ni	Sa	Ri	Ga	Ma
Sa	Ri	Ga	Ma	Pa	Dh a	Ni	Sa	Ri	Ga	Ma	Pa
Ri	Ga	Ma	Pa	Dh a	Ni	Sa	Ri	Ga	Ma	Pa	Dha
Ga	Ma	Pa	Dh a	Ni	Sa	Ri	Ga	Ma	Pa	Dh a	Ni
Ma	Pa	Dha	Ni	Sa	Ri	Ga	Ma	Pa	Dha	Ni	Sa
Pa	Dha	Ni	Sa	Ri	Ga	Ma	Pa	Dha	Ni	Sa	Ri
Dha	Ni	Sa	Ri	Ga	Ma	Pa	Dha	Ni	Sa	Ri	Ga

These are the murchana in madhyamagrama .

You must have noted that in a sapthaswaramurchana the magical square has a sama number but in a 12 swara murchana it is not so . The columns do not give the same number . There is an elliptical geodesic (the orbit of motion/kinetics) has changed from an equal circle to a ellipsoid . This is the true state of the cosmic sphere in its orbital motion and the other is to make us understand the principles of classical motion only .

6 Varnaalamkaaraprakaranam

Sl 118 *Thathra varnaa:*

Atha: param pradarsyanthe varnaaschathwaara eva hi

Sthaayisancharinou chaiva thathaallarohyavarohinou .

Now about Varna. There are 4 types of varnam. Sthayi (fixed), sanchari (the moving/traveling) arohi (ascending) and avarohi (descending)

Anuchedam 64. *Nanu varnasabdena kim uchyathe ?*

Varnabhedena gaanam abhideeyathe.

Yathra samaa: swaraa: anupahritharoopaasthishtanthi thebhyo yad geetham

Varnaabhivyakthikrid yathra pade

Sa varna: sthaayeethyuchyathe yathaa

Shadjyaam madhyamayaam thu maa maa maa maa ithi .

Sl 119 *Yathra geethe sancharanthi swara :*

Parasparam antyasahithaa:

Ekaikaso :diso vaa sa

Sanchari varna uchyathe

What do you mean by the word Varna ? Varna means a gaana or a song .When the swara are taken in sama(equalized) and sung the song is revealed and then the varna is created through the desired words/way .Thus padam is sthaayi in that method(since we use sama as sthaayi equalized ones).for example from shadja saareesaa and from madhyama maamaamaa maa are produced .They are sthaayi .

When the swara become sanchari(traveling) in a geetha they are sancharivarna .

Anucheda 65

Yathaa maalavakaisike –saa saa sani pa pani nipa nisaaa saa dhareepaa

Pani ni nee thyeve aadi prakareshu

Parasparasamcharaath

For example as in Mlavakaisika

Saa saa sani(paa) pani nipa

Nisaa (saa) dharipaa pani ni ni

Is seen by mutual movement of the sancharivarna to create that raaga.commentary:

Without sthayi one cannot start since it form the adharam on which the swara moves.Without movement or sanchara one cannot make a raaga with its form.Hence both sanchari and sthayivarna are essential for making/creating a raaga

Anuchedam 66

Yathra geyaa: swaraa arohanthi

Ekaikasa :saantharaa vaa sa varna

Arohithyuchyathe

Yathaa malalvapanchame

Paapasa dhari sama ripama mapa mapadha maa maa pasaari saasama maapaa rigaa

Saadha ni paari mama dhani ni nii paari mama dhani paadhani riripa

Ithi paraspara aikantharadwentharaswaraarohanaadaarohi

The swara in a geetha when they come one by one in a ascending order it forms the arohivarna.The example of malavapanchamam is given .

Paapasa –dhari-sama-ripa-mapa-mapasa-maamaa-

Pasaari-saasama-maapaa-rigaa-saaa-dhani-paari-mama-dhani-ninii –paari-maama-dhani-paadhani-riripaa .

Without interruption between them the swara come in an ascending order only .

Sl 120 Avarohanthi swaraa yathraikenaiva kramena thu

Sa chaavarohi sabdena samaschaantharaga :swara:

The swara in only a descending order is called avarohivarna.

(example : paapaa-mama-gaa-gaga-mama-mari-riri-ri

Paa-maa-mama-pasaa-papa-pa-maamama-nini dhadha –papa-pama-gagaa riri –ninidha-papaa and so on).

Dwuantharaswraavarohaasapanehithi atha evoktham

Sareera swarasambhoothaasthrithaanagunasobhithaa:

Amev varnaasthu vigneeyaa alamkaaraadhi sidhaye (Natyasasthram)

According to Natyasasthra avarohivarna is the order of descend with 2 each of swara at intervals .Varnam is used for revealing the alamkara or decorations.The swara are created

from a human body and they are repeated and it is the same way the varna are repeatedly being formed /created as before (and they have no end –eternal).

Anuchedam 67

Nanu katham varnanishpathy :uchyathe
Yathaahi swaraavarnakarshamaakarshayanthi
Geethavasaath sthayithwena sancharithwena
Arohithwena thadaa varnasya nishpathi :
Yathaa shadjyaam sthaayi varna:

How are the varna formed ? Varna are created when a singer creates varna according to need by attracting varna, revealing it in both sanchari and sthayi, and using both ascending and descending .That is varna is created when one sings .The sanchari sthaayi varnam of shadja is for example quoted.

Saa saa saa

In dhaivatha it is dhaa dhaani neee padha

In arohi it is gaa gaa gaa gaa paaa paadhapa maa ri ri riri pani sa dhaa nini dha and so on

Avarohi thathraiva samasaantharaswarai:

The avarohi is with equal intervals .

Paa-paa-paa-pa-paa-paa

Dhaa-nee-maa-paa-gaa-gaa-gaa-ga-gaa-gaa-
-dhakhyaam bhavathi (...)yadartham uktham yathaa evam ethe

Pravarthayanthi ityartha: saareerasware (thaduktham)

Ethe varnaasthu vijneyaaschathwaaro geethayojakaa @natyasasthram 29.19)

Ithi varnaa:alamkaara:

Just as in human body the varna can be brought out in a veena. In Geetham we use 4 varna. In Natyasasthra the varna are explained based on varna in Veena. Thus ends varna .Now to alamkara.

Anuchedam 68

Idaaneem suprasidhaasthathrayasthrimsadalamkaaraa
Naamatha: prayogathascha kathyathe
Thathraalamkaarasabdena mandanam uchyaathe yathaa
Katakakeyuraadinalamkaareva naaree purusho
Vaa manditha :sobhaamaavaheth thathaa
Ethairalamkarai : prasannaadhyaadibhiralamkrithaa varnaasrayaa.
Geethirgaathrursrothrunaam sukhaavahaa bhavatheethi,
Vyuthpathischa yathaa-dukrinjarane ?
Dhathuralamsabda poorvo lalamkaarotheetyalamkaara:
Dha,njan,tholayamalamkaarasabda ithi.

Now the most famous 33 alamkaaras ,their names and their use are explained. What do you mean by Alamkara (what is its etymology/niruktha?) I will tell. Alamkara is a bhooshana or decoration. Men and women decorate with bangles, bracelets and the like to beautify the self. Similarly Varnam is beautified by alamkaara starting from prasannam onwards. This is for giving pleasing experience for the song, for singer and for the

listener. The etymology of the word is: Dukrinjkarane. Alam means it is enough. To this word when the suffix ghanja is added it becomes alamkaara.

Commentary: The number of decorations are 33 which is the base number of the devaas. (33 crores are devas), who decorate the main deity Brahman. The same position of Brahman is applied here to Varnam and the decorations are to beautify the varnam so that song, singer and listener are pleased with it

Sarasaa saalamkaara suvarnamayamurthy is the definition applied to Vagdevi by Sanskrit scholars.

The grammatic rule of dukrinjkarane became very famous with Sankaracharya's BhajaGovindam song among singers. The alamkara is explained here with that grammatic rule. This states that when the Dravidian word alam (as in Alambhavam /upeksha) is given a suffix of gha and nja (one a Sanskrit and another a Dravidian varnakshara) one gets a new word. The gha is changed to ka (mridhu) and the nja is turned to Ra. Thus we get a new word alamkara (not alamghanja).

In fact most of the signs of Gods in Indian iconography has a etymological origin from onomatopoeia of music and dance. The free conversion of the consonants to mridu akshara is seen according to the sound produced by the instrument.

I will cite a few examples here.

1. Dhaaka. Change to Dhaa Gaa (daivatha, gandhara) with aksharasamkhyas 33 (daagha) or 43 (dhaa ghaa) the 33 for deva and 43 for the number of thrikona in a srichakra.

2. Khatuaangha. Khat Dhaa ankh Ghaa can be converted into a ghatga both being instruments of samhara. The khatuaangha has the appearance of a human Kundalini energy with a serpent and a skull attached used by kapalikas sect of Shaiva people. Not used by musicians

3. Mridangha. The Khat of Khatwangha is made soft to get the mridangha of Nandi. Mridhu instead of Khat. The Aahatha or striking sound is changed. Then Ma, Ri, dha, uu ga are the sound produced. Madhyama, rishabha, gandhara and dhaivatha are meant by the sounds here. Now the thandava of samhara changes to lasya of creation.

4. Gadha of Vishnu and Ghatam of Lakshmi. Both has ga, dha (gandhara and dhaivatha) and is the reverse of Dhaaga(kka) of Shiva. That is 33 and 34 (instead of 43).

5. Samkham. S, ankh, Ga ma. sa, ma, ga, ama. Sangham or sangamam a union and the number is 51. (number for varnakshara)

6. chakram. saagarima. If we say saagaram, the waves of sound and light of cosmic ocean is depicted with both sankha and chakra. Depicts the Brahmalingha Aakaasa with sound and light waves

7. Kousthubha. Ga uu sad ha uu pa maa has gandhara

, shadja, dhaivatha, panchama, madhyama and a sthobha of music uu has come twice

8. Pankhaja. Pa, ma, ga, jha (for the cha, chala, chamchala sound of a chilamka or chilampu). The element of dance is there in this sound in the sahasrara of bioenergy field

9. Mani, veena, venu: all these have the common sound Na. Which is onomatopoeia for a vibrating sound from a brass instrument like the bell. This represents the Pranava or Om.

10. Santhuria: sa, na, dha, u, ri, a. shadja, Na for vibration of sound as above, dhaivatha, rishabha and two syllables a and u which are 2/3rd of pranava.

11. Srigdhara (the garland of Vishnu) sadja, rishabha, gandhara, dhaivatha, rishabha.

12. Peethaambari: Panchama, dhaivatha, aaaa m (madhyama) panchama, rishabha

13 Chandana. Sa(chanda or santha is a musical term for orderly rhythmic song).na as vibration,dha,na .Shadja and dhaivatha intersperses with two Omkara as Naa

14.bhasmam .Panchama,shadja and madhyama .

15.Sri .Sa (shadja)ri (rishabha)

16.Saraswathi . shadja,rishabha,shadja,dhaivata

17 Sakthi Shadja,gandhara and dhaivath .Dheem (saktheem) as a sound from the percussion instrument adds a quality of samhara to this word to suit the consort of Shiiva in his samhara dance .

In this way each alamkara and word of the scripture for the usual iconographic ornaments have musical onomatopoeic connotations showing its etymology from a musical repertoire giving jaathi for each .

Anuchedam 69

Thathaalamkaaraanaam naamaani kathyanthe

Now the names of alamkara are enumerated .

Prasannaadi /prasanna	The first swara is in mandra /low
Prasannantha	The low mandra is at the end
Prasannaadyantha	Low mandra at beginning as well as end
Prasannamadhya	Low mandra at middle
Sama	Equal
Bindu (anuswaram)	To denote this a point is put above a line .Nasal tone
Nivruthapravritha	First use and then withdraw
Venu	Flute/Murali sound
Kampitha	Vibrating/shaking effect of sound
Kuharitha	As if there is a cave or a ditch/or hole
Rechitha	Either empty or a protruded effect
Premkholitha	Swings to and fro
Tharamandraprasanna	With high,low
Mandrathaaraprasanna	With low ,high
Prasthaara	Expanding or spreading
Prasaada	Exposed,well seen/brought out ,beautiful as a tower of temple
Udhwaahitha	That which is raised
Upaloka	Ever moving sound
Krama	With a systematic orderly fashion
Nishkoojitha	Like a birds call
Hraadamaana	High like a scream
Ranjitha	Colourful,pleasing
Aavarthaka	Recurring cyclically
Parivarthaka	Moving horizontally to and fro changing positions
Udghattitha	Rubbing,pressing moving upwards
Aakshiptha	Throwing down
Sampradaana	As if giving

Hasitha	Smiling/mocking sound
Humkaara	Making a sthobha HUM
Sandhiprachadana	The uniting part is covered
Vidhrutha	Moving
Udgeetha	That which is beautifully sung
Gathravarna	Colour of the body(of song)

Anuchedam 70

Idaaneem etheshaam alamkaaraanaam lakshanam uchyaathe

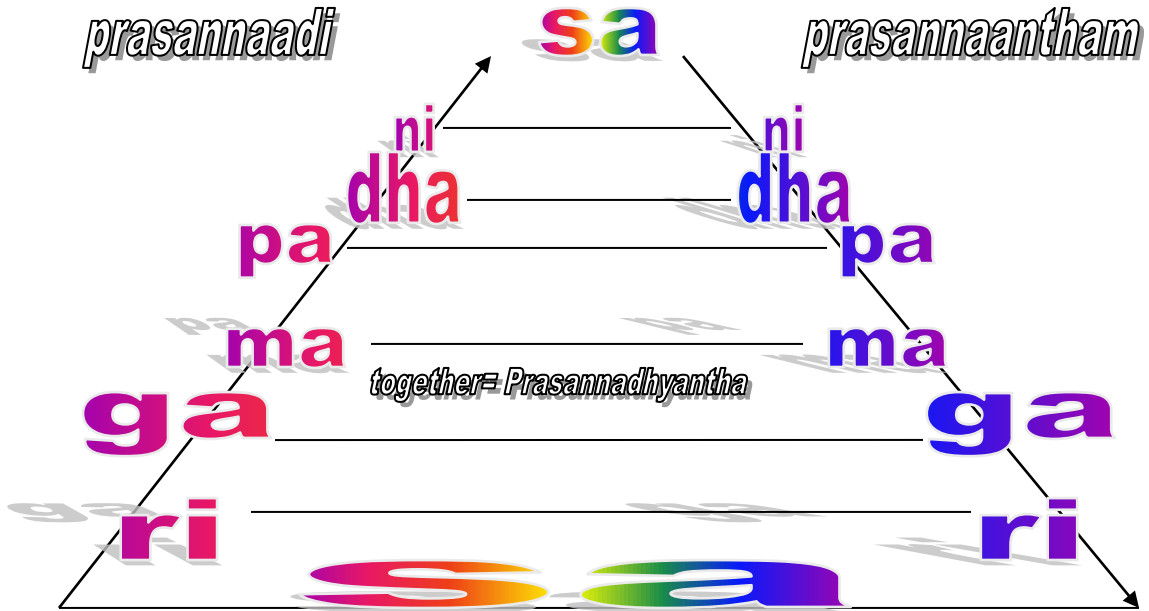
Thadyathaa mandraadaarabhya kramenaarohanam

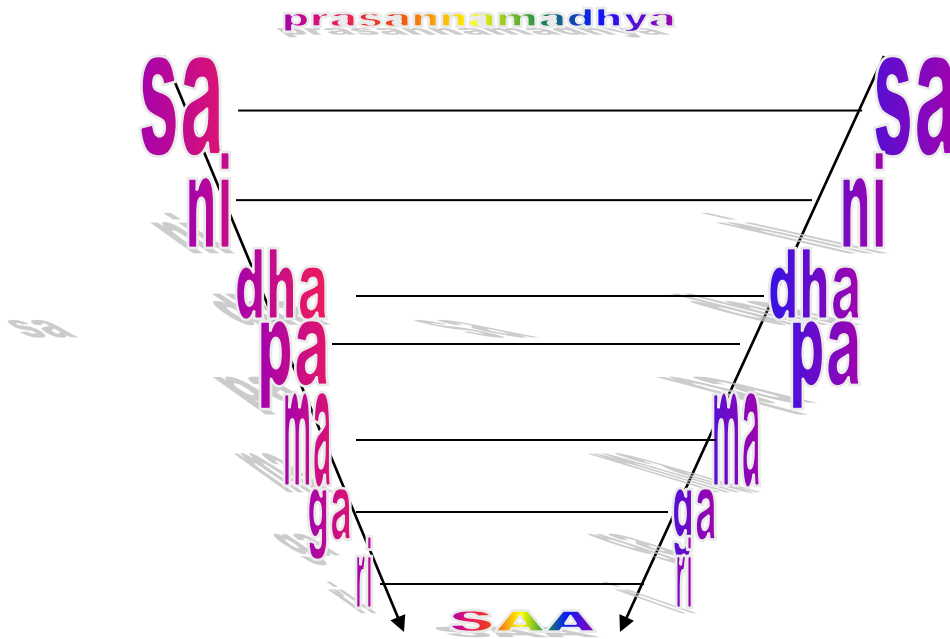
Thaaragathim yaavadasou prasannaadi:

Mandrasabdena prasannadhwani ruchyaathe yathaa

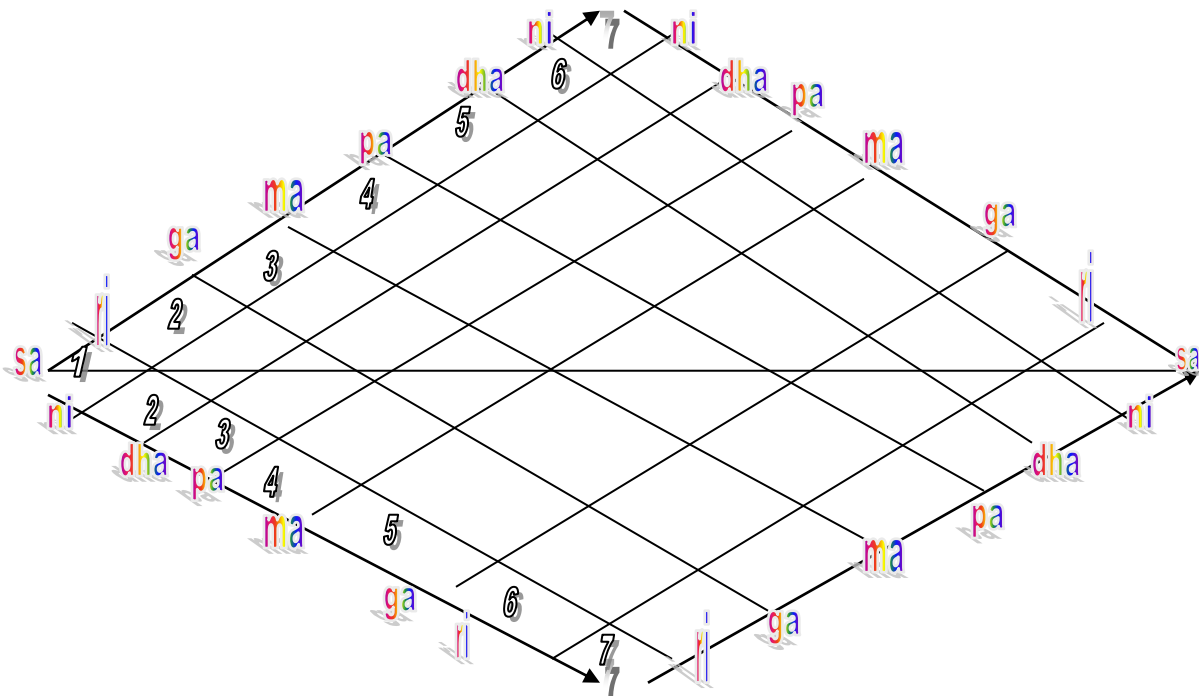
Saa ree gaa maa paa dhaa nee saa ithi prasannaadhi.

Starting from the lowest pitch as shadjam and slowly ascending step by step and finally reaching the highest pitch is what we call prasannadi. The usual first learning of swara as sarigamapadhanisa is a classical example.

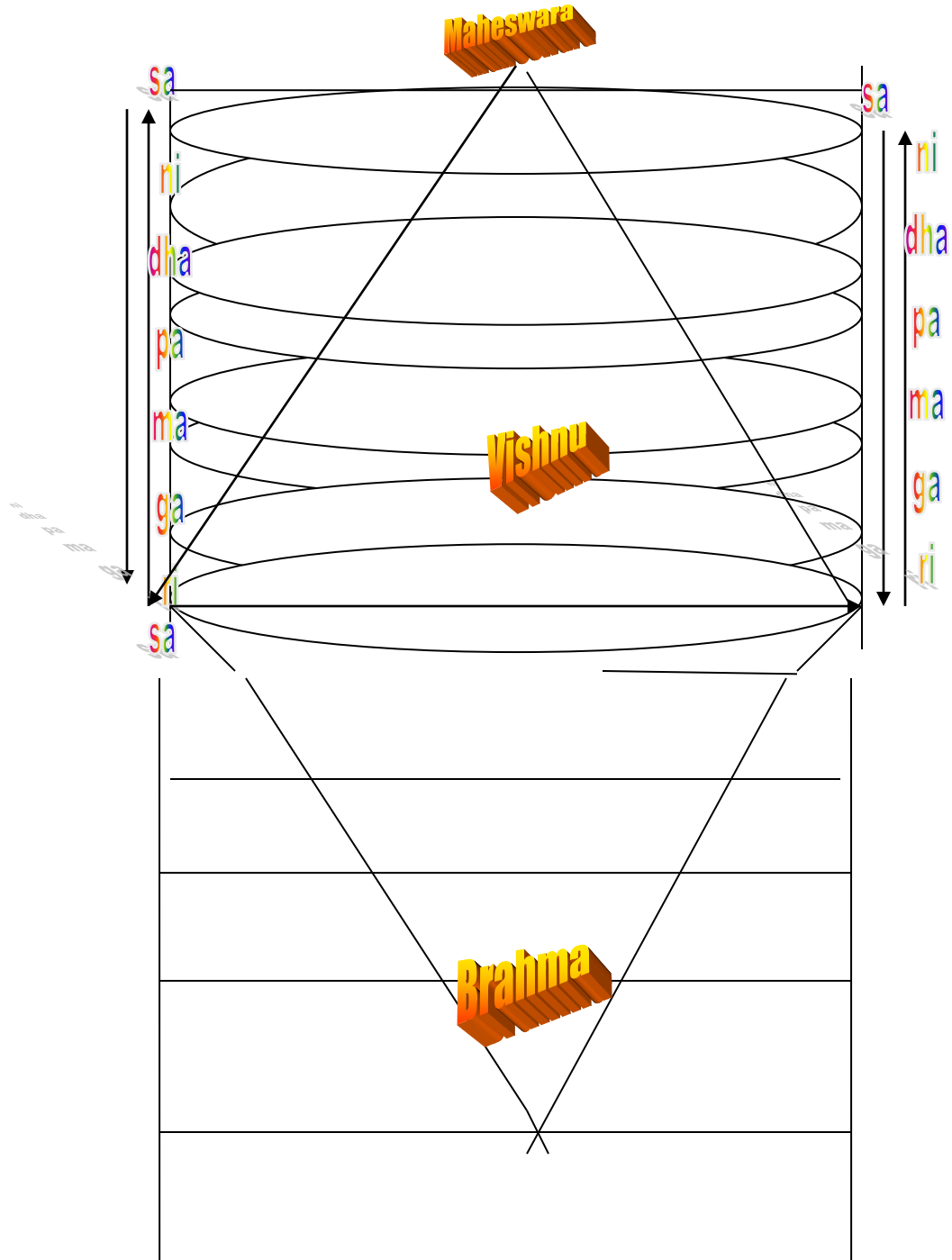




We have now two triangles one upturned and one downturned and I have drawn the Koshta/Veethi as quite unequal. The next step is to add the Prasannaadhyantha and the Prasannamadhya. We will get a 7 X 7 square or chathushka of 49 Maruths or praana as below



You are probably aware of the problem of the circle, square and triangle which the Greeks could not solve for millennia .This is the solution for it .The figure above when it is sung in waves of spiral cycles makes a cylindrical structure as below

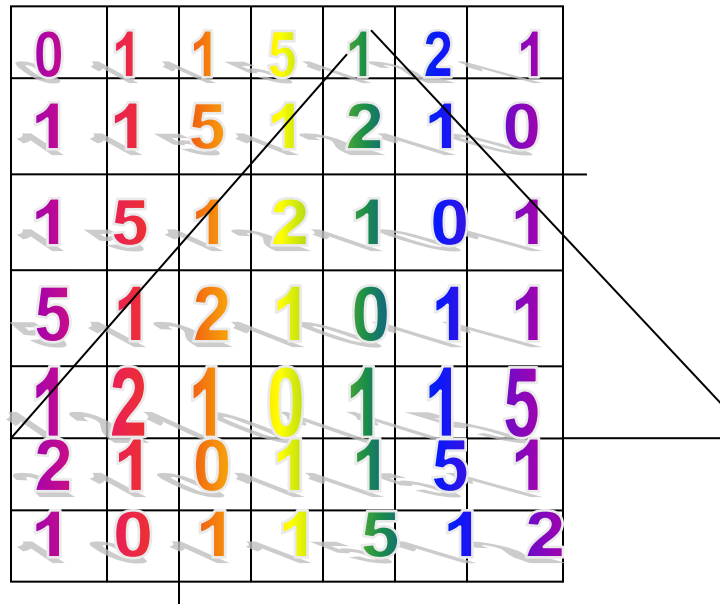


This is the iconographic Vasthu of Shivalinga as well as of earth, and heavens .

The First language to evolve was Tamil in India .It has only 16 swara,(each with number 1) ka,cha,ta,tha,pa each with 1 number making a total of 21 and also ya,ra,la,va (1,2,3,4) and 2 Dravidanunasika (0) making 33 in total which makes the 33 crore Deva of India. The first 21 is what is spoken of as the 3 X 7=21 river Goddessess (Saraswathi in general) in the Rgveda.The 25 letters make the 25 Samkhayathathwa of Indians. (21+yaralava) .The 25 +the 2 dravidanunasika make 27 Nakshathra .

Thus the Tamil ,as the first language of India itself had all the astronomical and Indus valley /Harappan weights and measures and musical notations .As Tamil has only kachatathapa the Sarigamapadhani is charikamapathani (and the numbers of the letters are only 1,2,1,5,1,1,0) and the sum total is only 11 .When the utterance of all people of India (all dialects incorporated) into this and a new educational language was made as Sanskrit ,the sapthaswara became sarigamapadhani and then the numbers are 7,2,3,5,1,4,0.The sum total is 22 (which is 11 X 2).We will get 2 magical squares one with 11 and the other with 22 when we make a chathushka from these 2 language systems (Tamil and all other language systems of India including Sanskrit).The central part is the part of a Pascals triangle as we know it today (shown as a triangle joining the small squares of 1 in figure)

Tamil:



			1		
		1	2	1	
4	1	2	1	0	1
5	2	1	0	1	1
5	1	0	1	1	5
8		1	1	5	
		1	5		
			5		

Lower 2 with panchabhootha and 7 for water(rivers) and the middle with 8(octagon) and panchapancha (5X5 =25;thathwa of Kapilasamkhya) representing Vishnu, the upper chathushka with 4 as the Vyuh and finally the top 1 as the Naadabindu or Eka makes a unit of what the Indians conceive of vasthu of cosmos as well as biological world .This was known to early Tamilians from this musical language and this was also known to IVC/Harappan people from their cosmic and other vasthu measurements and seals depicting 7 apsara/saraswathi etc.

Sanskrit and other Indian languages: SariGa mapa Dha ni

sa 7	ri 2	ga 3	ma 5	pa 1	dha 4	ni 0
ni 0	ga 3	ma 5	pa 1	dha 4	ni 0	7 sa
ga 3	ma 5	pa 1	dha 4	ni 0	7 sa	ri 2
ma 5	pa 1	dha 4	ni 0	7 sa	ri 2	ga 3
pa 1	dha 4	ni 0	7 sa	ri 2	ga 3	ma 5
dha 4	ni 0	7 sa	ri 2	ga 3	ma 5	pa 1
ni 0	7 sa	ri 2	ga 3	ma 5	pa 1	dha 4

This is the magic square for 22 which is the next multiple of 11 .Now you know how a Nashta (lost) number/varna /or answer is derived from this magical square and understand that this is the magic square Loshu which India transferred to China(as LopamudraSuthra) and known as sriramachakra/shivarahasya etc in several names in India and which is a magic square of 15 .This is what Srinivasan Ramanujan rediscovered .

Anuchedam 71

Thaaraadaarabhyavarohakramena(mandraparyantham)

Prasannantha:yathaa

Saanee dhaapaa maa gaa rii saa ithi prasannantha:

The reverse order starting from highest tharashadjam and descending is the prasannantham

Anuchedam 72

.Yathraahdyanthayo prasanna:madhye cha thaara :

Saprasannadhyatha:yathaa

Sarigamapadhanisa

Saanidhapamagarisa is prasannadhyantha .

These we all do when we start learning music .But we don't know that they are named and classified in such a systematic way by Mathanga .

Anuchedam 73 *Yathra mandro madhye adhyanthayoscha thaara:*

Sa prasannamadhya:yathaa-

Mandra in middle (neecha)and tharaor high in beginning and end is prasannamadhya

.Like,

Saaneedhapaamaagaareesaa

Saareegaamaapaadhaa niisaa

Anuchedam 74

Sthanathrayolapi sadrisadhwani: sapthaswarocharana:sama:

Ethaduktham bhavathi –yasya

Yavathya:sruthaya:sa sthaana thrithayeshu

Thaavaschruthika eva karya:yathaa-

Sarigamapadhaneethi (athavaa)

Dwayordwayo:swarayo:samvadinorucharanaath samaa:thadritha-

Samasapa ridhaghani(thi) gramabhede thu sama ripaganeethi

Visesha:ithi sama:

In the 7 swara ,in three positions,equal naada(dwani) or sound ,if produced it is called a sama (equal).In the same number of sruthi,in three swarasthaan,sound has to be produced.Like sarigamapadhani.Or,in the couples of swara with samavaadi ,in utterance sama has to come.Like sama,sapa,ridha,gain .When it is changed to madhyamagrama it is samaridhagani as special swara couples .This is what we mean by sama.

Anuchedam 75

*Chiram ekasmin sware shadjaadiroope
Sthithwaa thadeeya thaaram agnivath sprishtwaa
Kalaam ekaam cha sthithwaa yathra punarapi
Sahasaa mandra aagamyathe sa bindu :
Yathaa-saa(sa)saa ithi bindu:*

In one swara like shadja,if we fix for a long time,like fire with touch of thaara(high /star) ,and in a short timespan its speed become mandraswara (contraction) and It is condensed as a point in spacetime.Thus saa saaa saa ends in a point .

Commentary: Remember this is the opposite of expansion or prastharam where a swara is expanded to maximum to form a large universe .In Sriyanthra and srichakra the bindu is at top and center respectively .

Anuchedam 76 *ekakalaantharam sprishtwaa bindoreva*

*Viparyayochaaaranaath
Pravrithavinivrithathwaath nivrithapravrithaakhay: yathaa
Saa saa saa ithi nivrithapravritha:*

When a unit of time only is touched ,then the utterance of swara in Bindu become retrograde or reverse and then the alamkara nivrithapravritha is obtained.

Commentary: The contraction to a ultimate condensed point by a balancing act comes back by a reversal of geodesic and thus a telescoping of sound happen as if in a coiling serpent or a figure of eight fashion and this Athma/Aanathma change from avyaktha/vyaktha is a trajectory having unequal limbs .The term analemma is actually the anathema .The Athman as the greater limb and the anathman as its smaller mirrorimage/chaaya is meant .This is well described by the movement of the binary stars Sunaka (see Sudhasindhu D Books for the explanation) and by Paithamahasidhantha(see Panchasidhanthika Varahamihira .NBS Kottayam) .The same is demonstrated by a musical dialogue bringing sound to a concentrated point and then a reversal of flow of telescoping .

The special feature of Mathangha's text I have noticed is that la is used in places where usual later Sanskrit texts use ra.For example in anuchedam 74 Mathangha says Sthaanathrayolapi .This should be according to Sanskrit usage sthaanathrayorapi .The la as dravida anunasika is used by Mathanga,a Dravida.The use of Analemma also must have been by a Dravida observer from the language etymology .

Also note the terms kalaaantharam which had later become kaalaantharam and the modern word Caalender(calendar) is from this Sanskrit word .

Anuchedam 77

*Akreedithavadaarohaavarohakramena
Sapthakalo venu:yathaa
Sarigamapadhani nidhapamagarisa*

In ascending and descending there are 7 kala or units.This is for a flute.Like a leela or akreeditha(play) the sound ascends and descends through all the 7 .As sarigamapadhani .nidhapamagarisa.That is akreeditham or play which is also called a Leela in Mahabhagavathapurana

Anucheda 78 *mandrasamasapthakamadhye pavananirodhena*

Thrisruthe :kampanaaath kampithasthrikala:yathaa

By the vibration of swara the 3 sruthi in high pitch(thara) become vibrant .By all the 3 units (high,middle and low) by obstructing air(vaayu) kampitha is formed (in all swaras) like sarigamapadhani .

Commentary: when a column of air in a tubular structure vibrates nada is a vibrant wave.This ,when one controls one's praana(breath) and purposefully give a desired vibration produce music .Both a vocalist and a flutist do this .The air pressure in the respiratory tract is made vibrating here .Thus the basic physics of producing musical sounds vocally and by instruments like flute ,is expounded here.

Anuchedam 79

Madhyasapthake thrisruthe :kampanaaath

Thrikala:kuharitah:yathaa-sarigamapadhanisa (ithi)

In Madhya and mandra sruthi vibration to 3 sruthis happen and the 3 units are produced .Then it becomes kuharita as if produced from a cave .

Commentary: This is when a singer brings the sound to the middle(nabhi)and below (upto moolaadhara) levels and is a feat always done by Dr K.J .Yesudas to demonstrate the effect of sanchara from athimandra to athithaara by a organized braeath and sound control in his kutcheris and the practical side of it I learned from that only .

Anuchedam 80

Thaarasapthake thrisruthe:kampanaaath

Thrikalo rechitha:yathaa sarigamapadhanisaa ithi rechitha:

When tharasruthi have vibration of the 3 sruthi ,by the use of the three kaala (three timescales) rechitha is produced .

Commentary:The sarigamapadhani ithi is by the teacher demonstrating it to students and cannot be learned from books .Because the same sapthaswara is repeated in each demonstration on a page /book but its prayoga in music is not the same and one has to hear it from a music teacher .

Anuchedam 81

Dwayo:swarayorbahoonaam cha swaraanaam

Samakalagamaagamaachathurdasa kala:

Premkholitha:yathaa

In ascednding and descending orders ,2 or 3 swara together ,with 14 units (kala) is forming a premkholitham .It will be like ,

Sar-risa-riga-gari-gama-maga-

Mapa-pama-padha-dhapa-dhani-nidha-nisa-sani.

Anuchedam 82

Amsaachathurtham panchamam vaa swaram

Gathwaa-yathra mandre punaraagamyathe(sa)

Thaaramandrappasanna:yathaa-

Sariga,mapasarigamapadhari

Gamapadhaniga mapadhanisama

Athavaa,mandraswaraath thaaram gathwaa puna:

Sahasaa mandravasaadaagamyathe sa thaaramandrappasanna:

From amsa(a desired beginning point) 4th or 5th swara ,a mandraswara again appears in thaaramandrappasanna.

Example is sarigamapasa-rigamapadhari

Gamapadhaniga-mapadhanisama

Or else, from mandra to thaara and then suddenly coming back to mandra also is tharamandraprasanna.

Commentary:

Sa	Ri	Ga	Ma	Pa	Sa
Ri	Ga	Ma	Pa	dha	Ri
Ga	Ma	Pa	Dha	Ni	Ga
Ma	Pa	Dha	Ni	Sa	Ma

Note that this is not a magical square .The rule is entirely different .What we produce is a leaves falling in winter,rain drops or snow falling ,or cascades of a waterflow (river) falling in stepwise fashion.

Sa	Ma	Pa	Ga	Ri	Sa
Ri	Dha	Pa	Ma	Ga	Ri
Ga	Ni	Dha	Pa	Ma	Ga
Ma	Sa	Ni	Dha	Pa	Ma

Anuchedam 83

Mandraath sahasraa thaaram prapya mandrathwena

Kramenavarohanmandrathaaaprasanna:

Yatha –samapagarisa –ridhapamagari-

Ganidhapamaga-masanidhapama-

Athavaa mandraswaratthaaraswarmucharya

Kramenaavaruhya cha mandra evaamagamyathe sa

Mandrathaaraprasanna:yathaa-

Sa sanidhapagarisa ithi mandrathaaraprasanna:

When suddenly coming down from high to low it is mandrathaaraprasanna. The example given is ,

Samapagarisa-ridhapamagari

Ganidhapamaga-masanidhapama.

Or if after a low swara the high note, then by orderly descend coming to low note is also mandrathaaraprasanna. Example is sasaanidhapamagaririsa .

Anuchedam 84. *Dwiroopacha prasthaara: sthaayinyaaarohini cha. thathra sthaayinyeka*

swara: swasmaath kramasasthaaramandraa(roha)avarohana(arohini

cha)mandrathaaravarohanena(varohanena)swarena prasthaara:yathaa:

Sariri sasa riga garisa(sarigamamagarisa)sarigamapapamagarisa-
sarigamapadhadhapamagarisa-sarigamapadhanidhapamagarisa sarigama padhanisa
sanidhapamagarisa

Or

Sari risa –rigagari-gamamagamapapama-padhadhapa-dhanidha-nisasani ithi prasthara.
Prasthara has two types of varna one is sthayi and the other is arohi .(the fixed and the
ascending).In sthayi when one swara is ascending to high another descends to
mandra.Inarohivarna the aroha and avaroha of one swara to thaara and mandra happen .

Saririsa-sarigagarisa-sarigamamagarisa-sarigamapapamagarisa-
sarimadpadhadhapamagarisa-sarigamapadhanidhapamagarisa sarigamapadhanisa-
sanidhapamagarisa

Or saririsa –rigagari-gamamaga-mapapama-padhadhapa-dhanidha-nisasani.That is how
prasthara happens.

Sa	Ri						
Sa	Ri						
Sa	Ri	Ga					
Sa	Ri	Ga					
Sa	Ri	Ga	Ma				
Sa	Ri	Ga	Ma				
Sa	Ri	Ga	Ma	Pa			
Sa	Ri	Ga	Ma	Pa			
Sa	Ri	Ga	Ma	Pa	Dha		
Sa	Ri	Ga	Ma	Pa	Dha		
Sa	Ri	Ga	Ma	Pa	Dha	Ni	
Sa	Ri	Ga	Ma	Pa	Dha	Ni	Sa
Sa	Ri	Ga	Ma	Pa	Dha	Ni	Sa
						Ni	Sa

With this you can do both downward and upward movement and do have the magical
square and its peculiarities .The first lessons in Karnatic music is with such prasthara
exercises .Prasthara in opposite makes a prasaada .That is start with sani

Sa	Ni						
Sa	Ni						
Sa	Ni	Dha					
Sa	Ni	Dha					
Sa	Ni	Dha	Pa				
Sa	Ni	Dha	Pa				
Sa	Ni	Dha	Pa	Ma			
Sa	Ni	Dha	Pa	Ma			
Sa	Ni	Dha	Pa	Ma	Ga		
Sa	Ni	Dha	Pa	Ma	Ga		
Sa	Ni	Dha	Pa	Ma	Ga	Ri	
Sa	Ni	Dha	Pa	Ma	Ga	Ri	

Sa	Ni	Dha	Pa	Ma	Ga	Ri	Sa
Sa	Ni	Dha	Pa	Ma	Ga	Ri	Sa

Now connect these two .

Sa	Ni						
Sa	Ni						
Sa	Ni	Dha					
Sa	Ni	Dha					
Sa	Ni	Dha	Pa				
Sa	Ni	Dha	Pa				
Sa	Ni	Dha	Pa	Ma			
Sa	Ni	Dha	Pa	Ma			
Sa	Ni	Dha	Pa	Ma	Ga		
Sa	Ni	Dha	Pa	Ma	Ga		
Sa	Ni	Dha	Pa	Ma	Ga	Ri	
Sa	Ni	Dha	Pa	Ma	Ga	Ri	
Sa	Ni	Dha	Pa	Ma	Ga	Ri	Sa

Sa	Ri						
Sa	Ri						
Sa	Ri	Ga					
Sa	Ri	Ga					
Sa	Ri	Ga	Ma				
Sa	Ri	Ga	Ma				
Sa	Ri	Ga	Ma	Pa			
Sa	Ri	Ga	Ma	Pa			
Sa	Ri	Ga	Ma	Pa	Dha		
Sa	Ri	Ga	Ma	Pa	Dha		
Sa	Ri	Ga	Ma	Pa	Dha	Ni	
Sa	Ri	Ga	Ma	Pa	Dha	Ni	Sa
Sa	Ri	Ga	Ma	Pa	Dha	Ni	Sa
						Ni	Sa

Sa	Ni	Dha	Pa	Ma	Ga	Ri	Sa
----	----	-----	----	----	----	----	----

You will get a spiral of figure of 8 pattern of swara .It is a swaragopura or tower made of swara ,touching the heights as well as the bottom of the sea,from Paathaala to the top making 14 worlds in a group of 28 =(14 +14) .That is the number of Star worlds or star clusters in Indian astronomy based on which the Lunar needle of cosmic time functions for those on earth .It is only one half of the pyramid and the other half makes a perfect Swasthika or Sarvathobadra figure . The contraction of swara and the expansion of swara

depicts the contracting and expanding universes represented in Srichakra .Rediscovered by modern astrophysicists this was known to Gargya (the sage who named Krishna and Balarama) and to Vasishta (Guru of Rama) .Mathanga is a contemporary of Vasishta .

Anucheda 85.

*Prasthaara:vipareetha:prasaadha:yahtaa-
Saninisanidhadhanisa-sanidhapapadhanisa-
Sanidhapamapadhanisa-sanidhapa
Magagamagaririgamapadhanisa
Sanidhapamagarisasarigama
Padhanisa or
Saninisa-nidhadhani
Dhapapadha pamamapa magagama
Gaririga risasari ithi prasaadha:*

Prasthara has its opposite in prasaadha.The examples are given .

Commentary: Prasthaara is the expansion of swara.Prasadha is contraction of swara towards the tower .In iconography it is a beautiful concept of a gopura of swaras .

Anucheda 86

*Dwou dhou swarou dwikalou sancharanthaavaroha
Kramenaavarohachodwaahitha:yathaa*

In ascending order these two swara if moving to and fro (up and down) in each two kala each will be formed.Like

Sari Riga;gama mapa; padha dhani;nisa sani;nidha dhapa;pama maga;gari risa.That is udhwaahitha.

Commentary:

Thus with Udhwahitha you have made a pyramid .See below .

							Sa ni								
						nis a		Sa ni							
					Dha ni				Nid ha						
				Pa dh a						Dha pa					
			M a Pa								Pa ma				
		G a M a										Ma ga			
	Rig a												Ga ri		
Sa ri														Ris a	

Anuchedam 87

Ayameva dwirabhyasthairupalolaka:yathaa-

When udwahitha is used as the twice repetition of two swaras it becomes Upalolakam.As:

sari sari riga rig agama gama

Mapa mapa padhapadha dhani dhani nisa nisa

Sani sani nidha nidha dhapa dhapa

Pama pama maga maga gari gari risa risa .

Commentary:

Upalolakam is a beautiful step pyramid ,very strongly made by reinforced swara .See below .

						Nis a nis a	Sa ni Sa ni						
					Dha ni Dha ni			Nid ha Nid ha					
				Pad ha Pad ha					Dha pa Dha pa				
			Map a Map a							Pam a Pam a			
		Ga ma Ga ma									Ga ma Ga ma		
	Rig a Rig a											Ga ri Ga ri	
Sa ri Sa ri													Ris a Ris a

Anuchedam 88

Ekaadikramenaantharaswareshuaruhya

Punaravarohanakramena sthaayinam

Swaram gathwaa prasthaarakramenaiva

Ekaikaabhivridhyaa yathra swaraaa ucharyanthe

Thathra sakrama: ayam ekarupathwaath

Prastharena(na)bhidyathe.Yathaa –

After attaining sthaayi in ascending and descending order starting from same swara,without gaps ,increasing one swara each one has to do exposition as prasthara.By unification there will not be difference in prasthara.Like –

Saririsa,sarigagarisa,sarigama magariisa,sarigamapa pamagarisa,sarigamapadha dhapamagarisa,sarigamapadhani nidhapamagarisa,sarigamapadhanisa sanidhapamagarisa

Upto antharagandhara ascending and upto kaakalinishada ascending the stahyiswara is attained in this krama(order) Like sagani nigasa .

Commentary: From what is said about prasthaara you might have understood how important knowledge of prasthara is for a musician .One cannot sing without knowing prasthaara.Singing means swaraprasthaara only .That is why I said the statement of the digital teacher (The beauty of karnatic music) when it says prasthara is only of academic interest is misleading students.This is the usual mistake committed by ordinary teachers who have no idea of what prasthaara is .Prasthaara and melakartha raaga scales are fundamental of Karnatic music without which it has no foundation.Both are negated as academic interest by generations of modern music teachers .

Now you have made a beautiful Gopura entrance into the sanctum sanctorum of Music .The vasthu is opened for you to worship the Goddess of Learning ,Vidya .(The secret of SriVidya Upasana is this).

Sarigamapadhanisa	sarigamapadhanisa	Sanidhapamagarisa	sanidhapamagarisa
Sarigamapadhanisa	sarigamapadhanisa	sanidhapamagarisa	sanidhapamagarisa
Sarigamapadhani			sanidhapamagari
Sarigamapadhani			sanidhapamagari
Sarigamapadha			sanidhapamaga
Sarigamapadha			sanidhapamaga
Sarigamapa			sanidhapama
Sarigamapa			sanidhapama
Sarigama			sanidhapa
Sarigama			sanidhapa
Sariga			sanidha

Sariga	sanidha
Sari	sani
Sari	sani

Anuchedam 89

Adhaym thritheeyam thatho dwitheeyam

Thatahscha chathurtham anenaiva kramenaanyanapyaruha

Mandraannishkoojitha:

Kohalamathe cha ekantharaswaraaroahaannishkoojitha:yatha-

Arrange all swara in the order 1,3,2,4..That is nishkoojitham.Kohala has said that if the ascending order comes with one swara gap in between it is nishkoojitha.

Saga rima gapa madha pani dhasa This is nishkoojitham

					Dhasa	
				Pani		
			Madha			
		Gapa				
	Rima					
Sa ga						

					Dha Sa	Sa dha							
				Pa Ni			Ni pa						
			Ma Dha					Dha Ma					
		Ga pa							Pa Ga				
	Ri ma									Ma ri			
Sa ga											Ga Sa		

Anuchedam 90

Tharaadekaantharaswaraavarohaathriraavyathyaakalaa

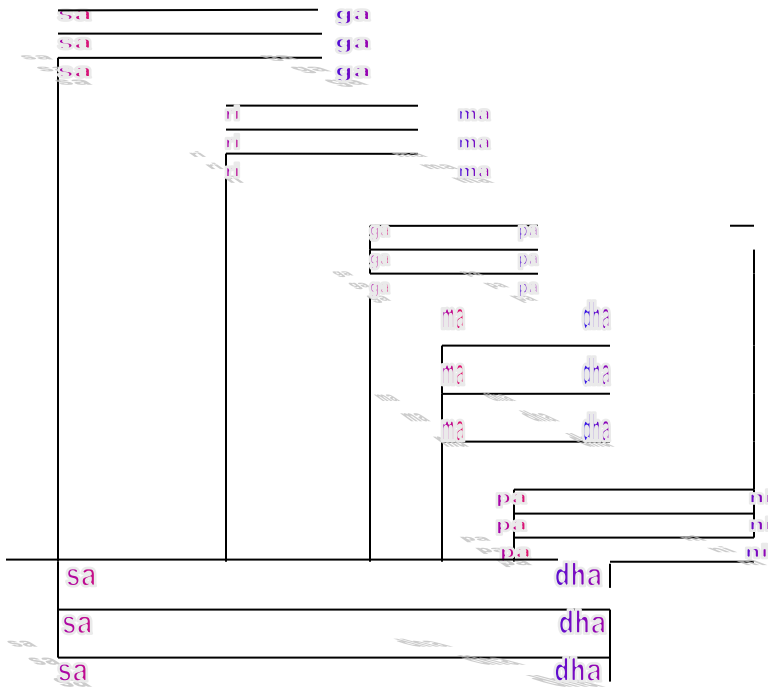
Thrayakaranaath sarveshaam hraadamaana:yathaa-

From the high note one swara gap ,in three kaala,three times if produced that is hraadamaana.

Sadha,sadha,sadha nipanipanipa dhamadhamadhama pagapagapaga marimarimari gasa gasagasa like that.Note the difference in each of the towers /vaasthu made .It is not amonotonous thing but highly creative and permits lot of originality(Manodharma) in artists.

					Ga Sa Ga Sa Ga Sa Sa	Sa Ga Sa Ga Sa Ga							
				Ma Ri Ma Ri Ma Ri			Ri Ma Ri Ma Ri Ma						
			Pa Ga Pa Ga Pa Ga					Ga Pa Ga Pa Ga Pa					
		Dha Ma Dha Ma Dha ma						Ma Dha Ma Dha Ma Dha					

	Ni Pa Ni Pa Ni pa								Pa Ni Pa Ni Pa Ni				
Sa Dha Sa Dha Sa Dha										Dha Sa Dha Sa Dha Sa			



Note that this can be a part of swasthika like this as well . The paths, the entrance and the structure of the Vasthu is all shown by swara themselves and a Silpi(architect) knew all these measurements .

Anucheda 91

Samanthara swaramaruhyadwe kale

Sthithwaa puna:swarolanthare ardhakalaam arohathy

punaschaanantharamevardhakalaam

Avarohathi sa ranjitha:yathaa-

One swara in descending order without gaps in two kaalapramaana ,the swara raised in ½ units ,then without gaps swara in descending order is Ranjitha.

Sarimaga, rigaapama, gamaadhapa, mapaanidha, padhaasani

Anuchedam 92:

Arohaavarohyaadyaamashtou swaraanuchaarya

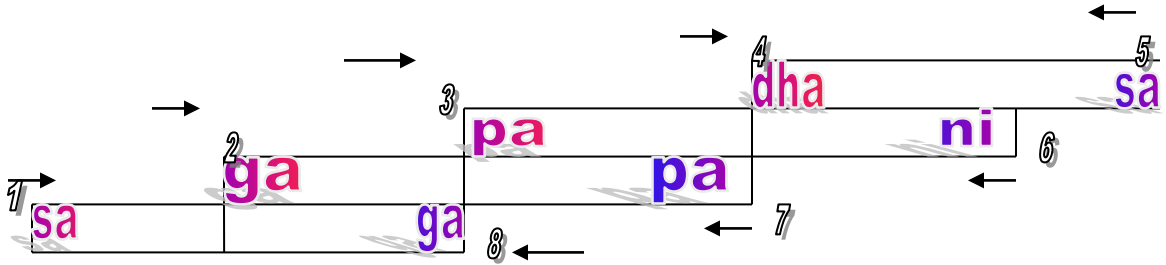
Praakswarocharananthe kramasolashtakala

Avarthaka:athavaa saga gapa pani

Dhasa sadha nipa paga gasa ithi aavarthaka:

After the first swara in ascending and descending order 8 swara produced and when a structure of 8 kala (unit) is formed it is Aavarthaka.(A repeating cycle) .

Saga gapa pani dha sa sadha nipa paga gasa .



This is what Mathanga said in the beginning that with 4 ladders all can be achieved and this is the simplest octave which we use as Ashtakala (The octagon which represents the middle of the vaasthu .It includes the top Eka (Maheswara) and the bottom earth of this universe .It is the Nadabrahman of 49 praana circulating giving energy and life to entire cosmos .That is Saamaveda tradition of Music .The directions can be reversed according to the manodharma and one can make endless(anantham) creations out of this One (Eka).

Anucheda 93

Anantharam thrishwaraannaruhy punareka swaram chathurtham

lamghayannaadhyam swaramShadjam gached.

Arohaavarohaadyam kalaashtakena

Thathaiva thaaraadaarabhya sarvaswaraanaam

Aarohaavarohanam .Shodasakala: Parivarthaka:sa cha loke

Ouhaadeethy uchyathe Yathaa.

Without a gap 3 swara in ascending ,then leaving the 4th swara ,go to 5th .Then again without gap 3 swara ascends ,then the 4th left and reach shadja.The first swara in ascending and descending order in eight kala is used.Like that from the top (ucha) make orderly use of all swara in ascending and descending order.Then one will get 16 groups of swara in parivarthaka(transforming the swara) and that is called by the world(popularly) as Auhaaadi .

Sarigama , pamagasa

Rigamadha ,dhapamari

Gamapani, nidhapagha

Mapadhasa ,sanidhama

Sanidhama, mapadhasa

Nidhapaga gamapani

Dhapamari rigamadha

Pamagasa, sarigama

These are the shodasakala (16 kala) with Parivarthaka .

Commentary:



This forms a wave of transformation as if it is ascending a mountain but actually it is not a mountain/pyramid but a wave in the ocean .The name Ouhadi/Pahadi is thus a name given to this parivarthaka transforming wave state of sound in an ocean of music .The shodasakala (16) makes the 16 sruthimandala in 3 sthayi(thara,mandra and Madhya) which is used by Indus Valley people in all their measurements whether mundane ,celestial or transcendental .Parivarthaka or Parvathaka from its common name as Mountain or Pahadi is thus explained .

Anuchedam 94

*Swaradwayehi ekakalayaa aarohakramena
thritheeyaswaram pariharannaarohakramena
Evoparithanasthaswaradwayam
Aakramannanenaiva kramenaavaroha:
Seshaanapi swaraananainaiva
Kramenaarohahannashtaadasakala*

If you avoid the 3rd swara and in one swara couple ,in one kaala cycle,in ascending order and with all order in descending ,avoiding the 2 swara we get udghattitham

Sarimapa

pamarisa,rigapadha,dhapagari,gamadhani,nidhamaga,mapanisa,sanipama,mapanisa,nidhamaga,gamadhani,dhapagari,rigamadha,pamarisa,sarimasa,magarisa.Thus Udghattitham has ashtaadasakala (18 kala) .

Commentary

The 16 or shodasakala is for the lunar mansion of star clusters on which the needle of cosmic clock Moon makes revolutions .The 18 arms or the Ashtadasa makes the next division .This is multiplied by 2 to get 36 sakthithathwa and by 3 to get 54 (the Gargya ayanamsa) and by 4 to get 72 ,the melakartha Raaga number.The 18 Velirs /18 astronomers scholars are very famous in India for their scholarship in all matters (sarvagna) .



Anuchedam 95

Thribhi:swarairaarohakramena vaa

Ekakaalaadaarabhya yaavath shdkaalam ityevam

Kalaamaanaadaakshiptha:yathaa

Sarigaanu ,rigamaanu,gamapaanu

Mapadhaanu,padhaneenu

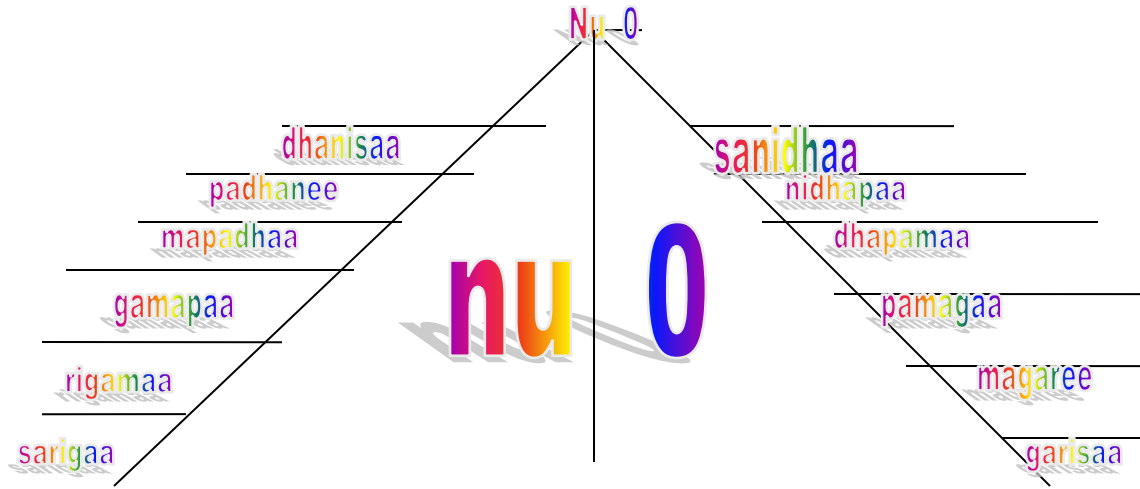
Dhanisaanu

Pamagaanu,magareenu

Garisaanu

This is Akshipthika.

Commentary :



This you can make a parallellogram by doing the same lower down .

Anuchadam 96

Prathamaaad swaraadanantharam parityajya

Swaradwaye cha gathwaa thenaiva kramenaa

Avarohanaadekakalaadh aavarohenelapi

Chaikakala ithi dwikalasampradaanascha

Dwaa vimsathikala:

The swara near the first swara is left ,then 2 each swara in descending order using as if it is a single kaka it is called Dwikalasampradaana.(giving 2 kala each ,as a single unit).This can be formulated in 22 time units .

Sagamaa marisaa,

Rimapaa pagaree

Gapadhaa dhamagaa

Madhane nipaamaa

Panisaa sadhapaa

Dhanisaa

Sadhapaa panisaa

Nipamaa madhane

Dhamagaa gapadhaa

Pagaree rimapaa

Marisaa samagaa

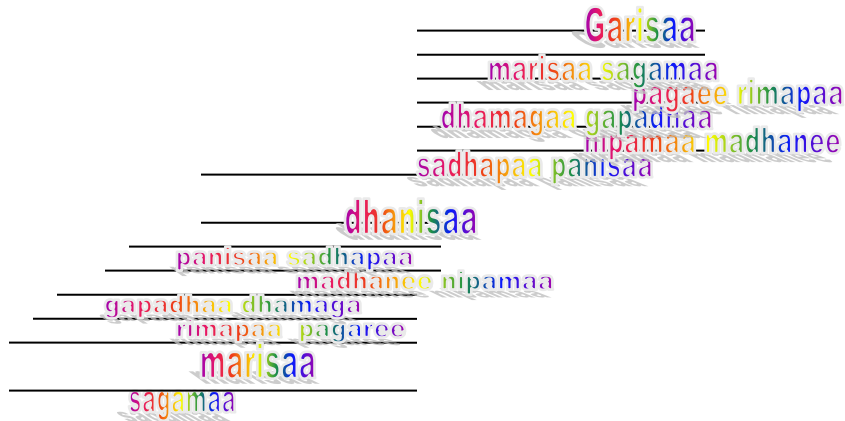
Garisaa

This is sampradaana.

Another way is ,

Sagamaa magasaa rimapaa pamaree
 Gamapadhaa dhapagaa
 Madhane nidhamaa panisaa sanipaa dhanisaa
 Sadhapaa padhasaa nipamaa mapanee dhamagaa gamadhaa
 Pagaree rigapaa marisaa sarimaa garisaa .

Commentary:



The entire wave mechanics possible with the 22 (dwavimsathi) time units are thus described. See the waves in a zigzag position ascending and descending as if coils of a serpent (Kundalini) and this spiral works in cosmos, in all our body units including our DNA and is the basis of all mathematical calculations, permutation combinations possible with it (72 melakartha). In earth the 22-23 degree axis deviation makes 36 sakthikala each divided into a 1/2 making 72. 360 degree of a circle is thus divided as 720 1/2 degrees. The same method is used for musical spiral permutations.

Anuchadam 97

Sampradaanasyaiva dwikalayogena hasanaad hasitah: yathaa

Saga mama risa

Rima papa gari

Gapadhapamaga

Madha nini pama

Pani sasa dhapa

Dhanisaa

Sadhapapa nisa

Nipamamadhani

Dhamagagapadha

Pagaririmapa

Mari sasa gama

Garisa

As the name indicates it makes one laugh .
Anuchedam 98
Hasithavad swarathrayaaroohanena
Chathushtayaaroohanena vaa ubhayathaapyekakalo
Humkaaara:
Sarigaa garisaa,
Rigamaa magaree
Gamapaa pamagaa
Mapadhaa dhapamaa
Padhanee nidhapaa
Dhanisa sanidhaa
Padhanee nidhapaa
Mapadhaa dhapamaa
Gamapaa pamagaa
Rigama magari
Sarigaa garisaa

Or

Sarigama magari
Rigamapa pamagari
Gamapadha dhapamaga
Mapadhani nidhapama
Padhanisa sanidhapa
Mapadhani nidhapama
Padhanisa sanidhapa
Mapadhani nidhapama
Gamapadha dhapamaga
Rigamapa pamagari
Sarigama magari

Thus in 18 kala one can use Humkara also in 22 different ways as shown above .

Anuchedam 99 *Thaaraath sapthamam swaram gathwaa*
Punasthathraivaagatyavarohakramena
Swaradwayochaaranena kalaachathushtayakaranaath
Sandhiprachaadana: yathaa
Sani sani sani sani
Nidhanidha nidha nidha
Dhapa dhapa dhapa dhapa
Pama pama pama pama
Maga maga maga maga
Gari gari gari gari
Risa risa risa risa
Gari gari gari gari
Maga maga maga maga

Pama pama pama pama
Dhapa dhapa dhapa dhapa
Nidha nidha nidha nidha

Sani sani sani sani after going upto nishada ,then from the highest shadja swara ,coming down in two swara each repeated and aalaapa is done in 4 kala (4 timeunits) then it is sandhiprachaadana .

Anuchedam 100

Amsaswaram chathurucharya thadantharaswaradwayasya
Druthocharanaadanenaiva kramenaarohanaadekakalou

Vidhootha: Yathaa

Sa sa sa sa riga

Ri ri ri ri gama

Ga gag a ga mapa

Ma ma ma ma padha

Papapapa dhani

Dha dha dha dha nisa .

The amsaswara is repeated 4 times. Then two swara each which follow it are sung quickly in ascending order in a single Kaala unit it is called Vidhootha.

Anuchedam 101

Thaaraad ekantharaswaraavarohaath kramenodgeetha:

Yathaa-

Sadha nipa dhama paga mari gasa

Ithi Udgeetha:

From each swara combinations, leave out one swara and sing in Descending order .That is called udgeetham .

Commentary:

						Ni ni ni ni	Sani
					Dha dha dha dh a	Nisa	

				Pa pa pa pa	Dhani		
			Ma ma ma ma	Pa dha			
		Ga gag a ga	Mapa				
	Riririri	Ga ma					
	Ri ga						
Sasasa sa							

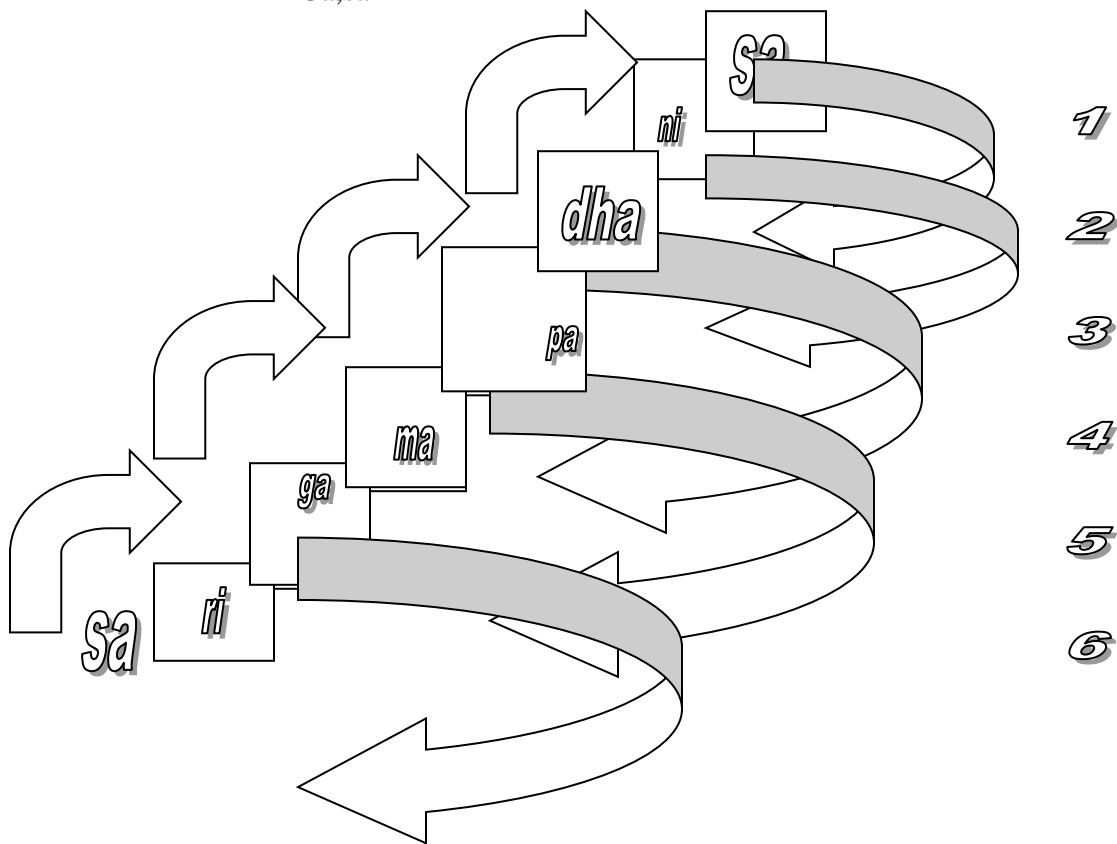
The order would be as below : Saa ni ni /ni ni ni / nisa

Saani dha dha dha dh a dhani
 Nidhaa pa pa pa pa pa padh a
 Dhaapaama ma ma ma mapa
 Paamaaga gag a gag a ma
 Maagari ri ri ri riga
 Garisa sa sa sa sari

This is the Udgeetham which an Udgaatha in Vedic sacrifice sings .The singer makes head movements to denote the ascend and descend of the swara movement .

The order he use is but Sa,dha,

Ni,pa
 Dha,ma
 Pa,gag
 Ma ri
 Ga,sa



This makes the 6 shadchakra (in cosmos and in biofield) as the Kundalini which is a central axis (sushumna) and the two Ida and Pingala as spiraling coils of energy

(male/female) making entire creative kinetic energy .See that the circle is not exactly equal ,or need not be equal ,though it could be equalized dynamically by flow of energy (by the 49 maruths/paana) in the naadi as Ayurveda,Yoga,Thanthra and music advocates alike . The Udgeeha of Saamagaana speaks of this flow of energy fields throughout cosmic and bioenergy fields making rejuvenation and life possible .

Anuchedam 102

Humkaaravath samanantharam samyuktham thriswraksharasamarohe

Thatho dhou dhou swarou

Kampanayukthou kalaantharayogaadeva prasannou mandrou

Kaaryou ityekakalaswarayogaad gaathravarna:yathaa

Dhanisa ni ni dhadha

Padhani dhadha papa

Mapadha papa mama

Gamapa mama gaga

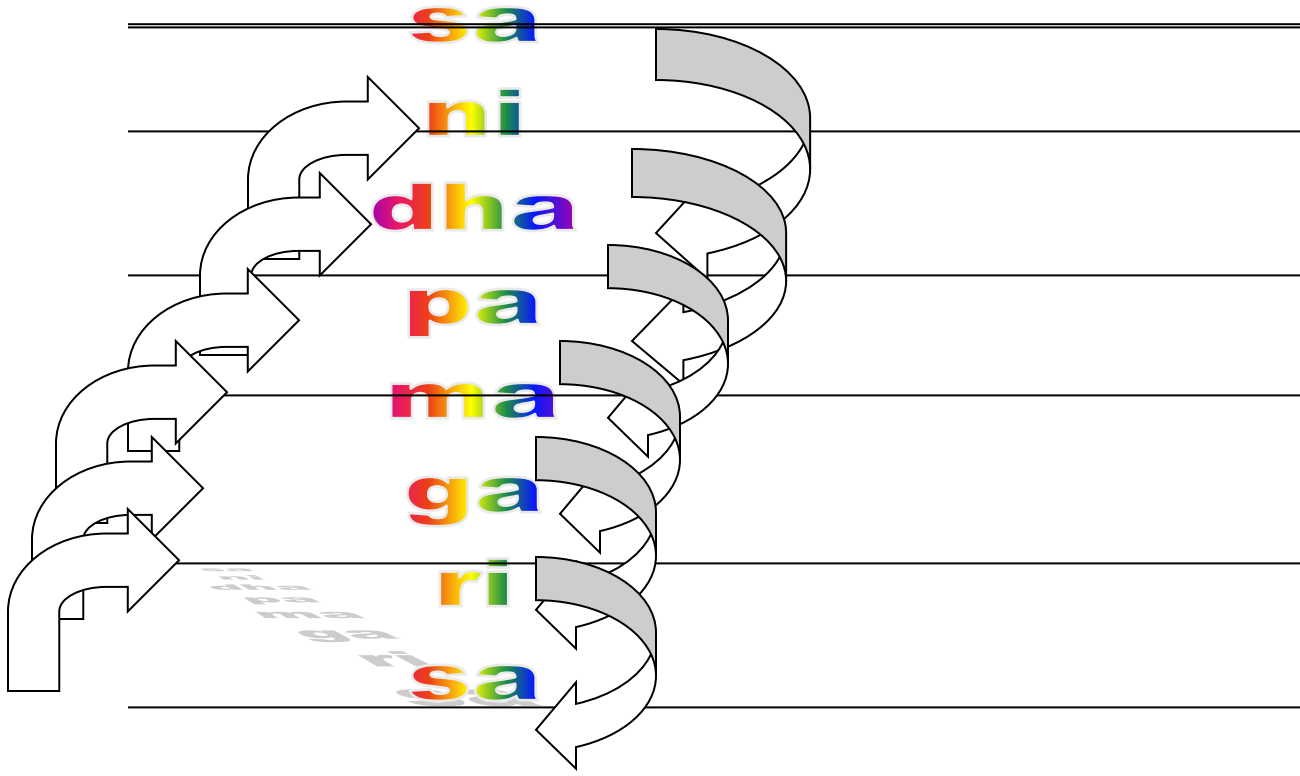
Rigama gaga riri

Sariga riri sasa

As in Humkara ,without leaving a gap ,in union 3 swara are organized.Then 2 lower notes are united and these 2 groups are used with kampana(vibrations between) .This should be having the kala(units) in unison.By a use of single kala(unit) as well as its union the varna of body(the colour of a body of music) is formed.

Commentary: The union can be between units either mandra,or theevra .The use should be prasanna (blissful/pleasant) .May be union of one or more than one unit .The word Kalaandara (the interval between units) is significant .It is this word which we now use as a Calendar for the interval of the time units .

Dhanisanini dhadha				
	Padhani dha dha papa			
		Mapadha papa mama		
			Gamapa mama gaga	
				Rigama gaga riri
				Sariga riri sasa



Thus the Gathravarna(body colours) are beautifully shown as the spirals of kundalini and this is the basis of Ragachikitsa too.

Bharathamathena alankaraniroopanam

(The analysis of Aalmkara according to Sage Bharataha)

Sloka 121 *Yasmin varne sthithaa ye cha alamkara: manohara:*

Thaanidaaneem pravakshyaami bharathoktha vidhaanatha:

Now according to sage Bharatha the beautiful decorations are said.

Sl 122 *Prasannaadi:prasannantha: prasannadhyantha eva cha*

Thathaa prasannamdhyasthu samo rechitha eva cha

Sl 123 *Gneyaa Hyethethwalamkaara yathaa lakshana lakshithaa:*

Atha sanchaarijaan bhooya:keertyamaanaannibodhatah:

Sl 123:

Mandrathaara prasancha bindu: premkholithasthathaa

Thaaramandraprasannascha syaannivrittha pravritthaka:

Sl 125 *Kuharachaiva venuscha ranjithaschopalolaka*

Avarthaka :paravartha ithi sanchari sambavaa:

Sl 126

Nishkoojithascha kuhare hasitho bindureva cha

Premkholithasthathaa llakshiptho vidhoothodhwahithou

Sl 127: *Hradamana:sampradaana:sandhipraschadanasthathaa*

Prasannadi :prasannantha arohini thrayodasa

Sl 129 *Vidhootho gathravarnacha udgeethoudhahitho venu:*

Panchaithe chaapyalamkara vigneaschaavarohini
Sl 130 prasannaadi prasannantho bindu:kampitha rachithou
Premkholithasthaaramandro mandrathaara :samasthathaa
Sl 131 Sannivriitha pravriithascha upalolaka venukou
Dwadasaithelapyalamkaara: sarva varnaasraya :smrithaa:
Sl 132 Mandro madhyascha tharascha avalokitha eva cha
Upaamghaakhyasthathormischa sarvavarnagathaa smrithaa
Sl 133 Saptha roopagathaa gneyaa alamkaaraa budhairime
Naithe sarve dhruvaaswishtaa athivarnaprakarshanaath
Sl 134 Nahi varnaprakarshasthu dhruvaanaam samprasasyathe
Syeno vaalapyathavaa Bindurye chaanye prathikarshana:

Sl 135 The dhruvaanaam ch aprayogeshu na karya :swapramaanatha:
Dhruvaanaam cha prayoge thu kaayaschaarohina swaraa:
Sl 136 Yasmaadarthaanuroopaaa hi dhruvaa kaaryarthadarsikaa
Varnaanaam thu puna: karyam krisathwam cha dhruvaaswalam
Sl 137 Yelathra prayogam gachantha thaamscha varnaan nibodhatha
Sthaayivaraadyathe chaishaam sampravakshyaami lakshanam
Sl 138 kramasa: deepyathe yasthu prasannaadi :sa kathyathe
Vyasthocharitha evaisha prasannantholabhidheeyathe
Sl 139 Adyanthayo: prasannathwaath prasannadhyantha ishyathe
Prasannamadhyo madhye thu prasannathwaadudaahritha:

Commentary: Mathanga ,just like a modern researcher after citing all that he wants to teach,gives a very authentic reference from Bharathamuni which also enumerates all the alamkara mentioned by Mathanga .The difference is that Bharatha groups them as different classes as below:

- 1.Rechitha: Includes prasannadi,prasannantha,prasannandhyantha,prasannamadhya and sama.
- 2.Alamkara due to Sancharivarna: They are much praised ones.Mandrathaaraprasanna,Bindu,premkholitham,thaaaramandraprasanna,nivriitha,pravri thaka,kuhara,venu,ranjitha,upalolaka,avarthaka,paravartha,are the beautiful sancharivarna (though he says 11 it is 12 in number)alamkara .
- 3.Arohini:
Nishkoojitham,sampradaanam,sandhipraschadanam,prasannadi,prasannantha,are 13 Arohivarna (only 5 said)
- 4.Avarohi: vidhootham,gathravarnam,udgeetham,udwahitham,venu are 5 avarohi varna alamkara .
- 5 Varnasraya alamkara are 12
number.Prasannadi,prasannantha,bindu,kampitha,rechitha,premkholitha,tharamandra,man drathara,sama,sannivriitha,pravriitha,upalolaka,venuka .(13 cited)
- 6.Avalokitha :He then says that mandra,Madhya,thara,are avalokitha.This and an apaangha called Urmi (wave) are also varnasraya alamakara .
According to him all these alamkara are belonging to the saphageethaka(7 Songs) and all of them are not to be included in Druvageetha.The reason is that the Varna are long

and slow (while Dhruva is not that long and slow –more fast and time span is less at poles).

In dhruvageethi ,as corresponding to polar regions the prolonged melodious singing is not praised much. When one is doing a melody alaapa to use Syena or Bindu is not advocated .Choose the swara to make melody according to one's measure (regional) like equator .The maximum is possible at Equatorial region and minimum at dhruva ..In dhruva use aroohi (ascending notes) and make it meaningful .The swara should convey meaning for dhruvageethi. The varna has to be made softer and thinner for pleasing .

Those people who can sing Dhruvaageethi well can cognize varna as they are. Now leaving out the sthaayivarna, all alamkaras will be described. If first slow and then gradually become speeded up and high notes it is prasannadi and the reverse is prasannantha.

When there is slow pleasing nature in the beginning the name prasannaadhyantha is given. The prasannantha or pleasing slow melody coming in middle is prasannamadhyha.

Sl 140

Sarvasaamyath samo gneya:

Sthithaschaikaswarepi hi

Bindurekakalam thaaraam sprishtwaa thu punaraagatha:

The term sama means all swara have equal stature .But among these only one swara is given a fixed state .After touching one kala ,the bindu(point) comes back to it .

Commentary :This is a explanation for what we do in musical repertoire when we sing .The one swara which we use as the sthaayi or adhaarashadja is to be considered as Bindu(point) and all other swara are in relation to it .The sthaayiswara after touching all other swara come back to its original position. But remember ,all swara are equal and any swara can be taken as adhaarashadja. This is how the Raasleela of Krishna happens .The adhaarashadja is Krishna and Panchama is Balarama and all others are the Raagini/Gopika as shown in the Aychiyar Kuravai of Chilappathikaaram, a sangam period Tamil epic. This is also true when we say Lanka is the Adhaarabindhu(Mooladhara) Any point on equator can be taken as the mooladhara .But for an observer in India ,the nearest landmark Lanka is the fixed mooladhara .The position of all other celestial points to a fixed point Aswini (The Horse/Hippas) which is congruent with Lanka is thus fixed for observing monsoon and the seasons of India .This was essential for the seafaring tribes and agriculturalists and traders of India .The equality of all swara(and of all living and nonliving things) in that it can at any time become Divine Mooladhara shadja (Krishna/ Naadabrahma) is the Mono/pantheism of Advaita of the land.

Sl 141 *Syaannivrithapravrithascha mandram gathwaa samagatha:*

Akreeditthalayo yasthu sa cha venu:prakeerthitha:

After touching the lowest note ,the term nivrithapravritha is applied. That with playful movement giving laya is called Venu.

Commentary: The nivrithi and pravrithi in Indian language means the delusion or concentrated state and the creation or expansion. Thus the swara touching the lowest and highest note is doing this expansion and contraction just as the universe is doing .That is nivrithapravritha .And Venu is a bamboo flute which makes this movement with a playful

effect so that all get concentrated in that focal point of laya and forget everything else .This is thus given as a symbol of Krishna .

Sl 142:*Urogatha:kampitha:syath kampanacha kalaathrayam*

Kante nirudhapavana:kuharo naama jaayathe

In chest (in the lower positions of swara production) when the 3 units of time comes it is called Kampitha.(vibratory).Neck is the middle of the position where the swara is produced.When there is obstruction to the flow of air there ,kuhara is produced by singers.When the same thing happens at head position,and 3 time units produced there it is Rechitha.

Commentary: In the octave of the human body the chest is the lowest position(starting from nabhi to heart) and neck (with larynx) is the middle and above it is the highest .A singer when he starts vibrating his voice from the lowest positions of nabhi to heart it produces the 3 units of time and that is called kampitha.And when it becomes vaikhari(manifested) in the neck ,which is middle octave (which is very flexible since it can go up and down easily with a very high range) it is called Kuhara .Such people can go to mooladhara to sahasrara easily .To mandra and thaara without any effort and demonstrate all ranges.Rechitha on the other hand is in the high notes .

Sl 143

Thrikalaathu kampanaath thadwadrechithaakhya :sirogatha:

Gathagathapravrithe ya:sa promkhalitha uchyathe

In the high notes and with vibration,the swara is called rachitha.If it goes in the ascending order and then comes down in descending order it is premkholitha

Sl 144 *yasthu kanta swaroladhasthaath sa thu thaara:prakeerthitha:*

Urogathasthathaa mandro moordni thaarathara:smritha:

Thaara is that swara which produced from the lowest portion of the neck .That which is produced from chest is mandra.And that which comes from head is the most high .

Sl 145 *kramaagathasthu yasthaaraschathurtha:panchamolapi vaa*

Thaaramandra prasannasthu gneyo mandragatho budhai:

Following the high note ,the 4th or 5th is the thaaramandraprasanna.It is also Mandra .

Sl 146 *langhayithwaa varaan mandraan kramaaath thaaragathimgathaa:*

Mandrathaaraprasannaasthu gneyo hyarohanaad budhai:

The following swara,avoiding mandram onwards,starting from lowest note,and ascending to Thaara is mandrathaaraprasanna.

Sl 147 *Eka swaraadhirooda:kramasa: prasthaarasamjnako gneyo*

Prastharasthu nivrtha:sanai:prasanna:prasada:syaad

Sl 148 *Samanantharou swarou duou vicharatyudwahithou dwikala eva*

Arohatyekakalaam punarekakalaam prasaadayathi

Each swara in order increasing in ascending order is prasthara and coming down is prasada

As dual notes ,without a gap ,progressing up and then coming down as a single note each in order (as prasada) is Udhwaahitha.

Sl149 *Udhwahitha eva syadupalolaka samjnako dwirabyastha:*

Ekam duou threen gachan swaraan kramena sa kramo gneya:

If we double the order of the udwahitha,it is upalolaka.That is from 1 to 2;from 2 to 3 is krama or order .(this is doubled in upalolaka).

Sl 150 *Ekantharamaaruha pratyekantharam swaram yasthu*

Nishkoojitha samjnakolasou gneya :sooribhilalamkaara:

Leaving a gap of one,from each swara in ascending order is nishkoojitha.

Sl 151 *Kramayogenaanena thu sancharyekantharaswaro dwikala:*

Dui vara :shadpara:evam hyaaroohi hraadamaana :syaath

Leaving one swara each as two units ,2 time units, the 6 swara in ascending order is Hraadamana.

Sl 152 *Atha ranjithasthu samanantharasware dwe:kale puna:*

Arthakalaamaaroohi punareva thathaavarohi syath

Ranjitha is that in which in both ascending and descending ½ time units or as two swara without a timeunit continuously ,is ranjitha .

Sl 153 *Avarthakaschathurshu swareshu samananthareshu sambavathi*

Arohanaavarohanavidhinaa chaikanthareshuapi vaa

In ascending and descending without gaps 4 swara ,or with one swara gap in 4 swara,is called avarthaka

Sl 154 *Gneyo niranthara krithasthwashtakala: saantharasthathaa kaarya:*

Thajnai :kalaachathrasrasthreen swarantharam lamghayathi cha nivruthou:

With 8 units,without a gap,or with 4 timeunits with gap in between each,is repeated in aavarithaka /avarthaka .

Sl 155 *Adhiruhya cha swaraam sthreen swarantharam lamghayathi cha nivruthou*

Punarapi cha paraavrithyaa parivarthakolashtakalo gneya:

3 swara ascending ,the 4th swara as nivrittha,_descending or avoided-with 8 time units is in order parivarthana,nivrittha and paravarthana respectively

Sl 156 *yasya swaravatheethou thathaaparam hyantharaswaro bhavathy*

Eka kalascha thathaa bhaveth thadoodghattitho nityam

After 2 swara one swara is left out and used as a single time unit it is udghattitha

Sl 157 *Aakshipthikastriswaraja:karthavya:shadvidha:kalaamaana:*

Ekakalasthuadhara:syaad shadkaliko vaaparo gneya:

In each kala 3 swara each,for the kala(timeunit there are 6 differences (shadkaala) of measurements;the last one on bottom is ekakala(one unit) and the highest with 6 unit – that is akshipthaka

Sl 158 *akshipthaschathurbhi:swaraisthu kale kalaantharopethai:*

Ekantharaswarakrama iha gaditha:sampradaanasthu

After each swara ,the interval determines the 4 types of sampradaana.It is like akshipthka in which the the timeunit measurement from one swara to another is the determinant .

Sl 159 *.Samaananatharaswarakritham chaakshipthakamiva budhairgneyam*

Samananthara swareshu hasithavath thriswaraischathu:swairvaapi

Produed as if one is laughing is hasitha.It is with two units.Twice produced.Without gaps uttered,it is called akshipthaka by scholars

Sl 160 *Arohathyekakalo humkaraakhya:sa vijneya:*

Sthaanaanatharamaruha pratyethi dwayam chathushkalo gneya:

Without gap like hasitha,swara in ascending order ,3 to 4 as a single time unit,is Humkara

Sl 161 *Kramenordhwe parikshepa:syad sandhiprachadani naama*

Adou padamucharya thu yathra syad dwisware laghuvarna:

In 4 units,in ascending order,and after ascension as doubles (2 swara) coming back is sandhiprachadana.

Sl 162 *adou padam ucharya thu you syad dwiswarolaghuvarna:*

Samananthramarohatyeka kalaam thad vidhutham thu

After singing one padam,as a couple of swaar and with a laghu varna and as one unit in ascending order is vidhootha .

Sl 163

Adaavarohi syaath prastharolanthe lavarohathe yathra

Pramaanathascha kalaasu vadanthyalamkaaramudgeetham

To start with descending and then in fixed time units prasthaara in descending order makes prasthara .

Sl 164 *Humkaravadaarohedanantharaamsthu swaraan kalantharayo:*

Duou duou prakampamaanou thathascha prasannou duou

Sl 165 *Varnaalamkaaravidhou vijneyou gaahravarna ithi evam*

Akarokarathaya deerghaaksharam anyadapi yojyam

As in humkara without gap ascending swara in 2 time units,and 2 swara with vibrations sung ,according to varnavidhi(rule of coulours)and rule of decorations and with union of A and O ,(akaara ukaara)it becomes Gatharavarna (the colour of the body of song).

Sl 166 *Geethaalankaaranaamalamkaranavidhirayam samudhishta:*

Ebhiralamkarthavyaa geethirvarnavirodhena

Thus decorating the geetha(songs) is explained.Without making them contrary to the varna one has to make the geetha beautiful with proper decorations.

Sl 167 *Sthaanechaalamkaaram kuryaanna hyurasi kancheem badneeyaath*

Bahavolalamkaara:syurvarnaviheenaa na prayokthavyaa.

The decorations should be in their proper places .The kanchi is to be worn in waist and not in breast .There are numerous decorations.But without varna,no decorations should be done .

Sl 168 *Sasi virahitheva rajani vijaleva nadee lathaahyapushpeva*

Analamkritheva naaree geethiralamkaaraheenaa syaaad

A geeth (song) without decorations (of the said types above) is like a moonless night,waterless river,flowerless plant and a lady without ornaments .

Sl 169 *Alamkarasthrayasthrimsadevam ethe mayodithaa:*

Nodithaa ye thu thelapyathra pratyethavyaa maneeshibhi:

Thus I have described 34 alamkara.The intellectuals should understand that there are numerous alamkara which are not said here and use them judiciously with their discretion wherever needed .

Anuchedam 103 .*Thathra prasthaaraa yathaa shadjaadishu*

1.sarigamapadhanisaa prasanaadi:

2.Sanidhapamagarisa –prasanantha

3.sarigamapadhanisa

Sanidhapamagarisa-prasannadyantha:

4.sanidhapamagarisa

Sarigama padhanisa –prasannamadhyama

5 sarigamaa paadhaanisa sama:

6Sa sa sa –bindu:

7.saa saa saa nivrithapravritha

8.sarigamapadhani

Nidhapamagarisa –Venu

9.Sarigamapadhanisa –Kampitham

10 sarigamapadhanisaa –kuharitham

11.sarigamapadhanisa –rechitham

12 Sarisaaree gaagari

Gamaagama mapaa pama padhaadhapa dhanee nidha

Nisaa sani –premkholitha

13 sarigamapasa

Rigamapadhari

Gamapadhaniga

Mapadhanisama-tharamandraprasanna

14 masanidhapa .mandratharaprasanna

15.saririsa saarigagarisa

Sarigamamagarisa

Sarigamapamagarisa

Sarigamapadhani nidhapamagarisa

Sarigamapadhanisa

Sanidhapamagarisa-prasthaara

16 saninisanidha dhanisa

Sanidhapapadhanisa
 Sanidhapamamapadhanisa
 Sanidhapamagagapadhanisa
 Sanidhapamagaririgamapadhanisa
 Sanidhapamagarisa(sa)
 Rigamapadhanisa –prasaadam
 17 Sari riga gamamapa dhani nisa sani
 Nidha dhapa pama maga gari risa –udwahitham
 18.sari sari riga rig agama gama mapa mapa padha padha
 Dhani dhani nisa nisa sani sani nidha
 Dhapa dhapa pamapama maga maga gari gari risa risa-upalolalam
 19 Saririsa sari gagarisa sarigama magari
 Sarigamapapa garisarigamapa dhadhapamagarisa
 Sarigamapadhaninidhapamagarisa
 Sarigamapadhani nidhapamagarisa
 Sarigamapadhani sasanidhapamagarisa- kramam
 20.sagarima gama madhapanidhasa-nishkoojitham
 21 sadha sadha nipa nipa dhama dhama paga paga mari mari gasa gasa –Hraadamaanam
 22 saarigaririgaamaga
 Gaamaapamamaapaadhapa
 Padhaanidha dhaanisani -ranjitha
 23 sarigamapadhanisa sanidhapamagarisa –avarthaka
 24 sarigamapapamagasa
 Rigamadhadhapamari
 Gamapanini dhapaga
 Mapadhasasanipama
 Sanipamamadhasa
 Nidhapagagamapani
 Dhapamaririgamadha
 Pamagasasarigapa-parivarthaka
 25.Sarimapa pamarisa
 Rigapadha dhapagari
 Gamadhani nidhamaga
 Mapanisa sanipama
 Sanipama mapanisa
 Nidhamaga gamadhani
 Dhapagari rigapadha
 Pamarisa sarimapa –udghattitham
 26 sari rigama gamapa mapadha
 Padhani dhanisa sanidha nidhapa
 Dhapama pamaga magari garisa-akshipthaka
 27 Sagamaa marisaa rimapaa pagari
 Gapadhaa dhamagaa
 Madhani nipamaa panisaa dhadhapaa
 Dhanisaa sadhapaa panisaa
 Nipamaa madhani dhamagaa gapadhaa

Pagari rimapaa
Marisaa sagamaa garisaa
Sagama Marisa rimapa pagari –sampradaana.

Commentary: Though Bharatha says I have described 34 alamkara he gives as examples only 27 and what he said in earlier sloka that the rest one has to understand with inteelect applies here. The examples are given ,not to be written but to be orally demonstrated by the teacher has to be born in mind. The swara positions and the rules understood ,the student learns from teachers oral renderings (sruthi is listening and then learning by cognition) and this is what one really means by the word Upanishada(the secret learning at the side of the Guru) .One cannot learn this from written works –whether palm leaves,stone inscriptions,books or electronic media. One has to hear ,listen to as many renderings /teachings/oral /vocal by teacher to get correct pronounciation and the pitch and methods of music and language .And then one has to remember (Smrithi) that which is listened and cognized(sruthi) and when one does a duty/performance have its remembrance(Pratyabhigna) or repeated memory whenever time for use happens . That is education of any subject .Not just literacy rates ,as far as Indian education is concerned .

7 PADAGEETHIPRAKARANA

Sl 170 *alamkaara mayaaprokthaa ,yathaavanmunisathama
Atha geethim pravakshyaami chandolakshara samanwitham.*

Sage,now I have described all alamkara. We will discuss Geethi(songs) It has relation to chandas and akshara .

Sl 171 *prathamaa maagadhee gneyaa dwitheeyaa chaardhamaagadhi
Sambhaavithaa thritheeyaa cha chathurthee prithulaa smrithaaa.*

The first is called Magadhi and second is ardhamaagadhi .Third is sambhavitha and 4th is prithula.

Sl 172 *thirnivrithaa cha yaa geethi :saa geethirmaagadhee smrithaa
Ardhakalaa nivrithaa cha vigneeyathwardhamaagadhi*

To repeat thrice is magadhi whereas with ½ time of magadhi sung is ardhamaagadhi

Sl 173 *sambavithaa vigneeyaa gurvaksharasamanuithaa
Prithulaakhyaa cha vijneyaa laghuakshara samanuiithaa*

By guru letters(which have more than one unit) is made sambavitha .Prithula on the other hand is made of laghuakshara(with one unit letters)

Anuchadam 104 Dakshine marge prithulaa geethi:varthike marge sambavithaa

Chithre marge magadhi. Ashtou maathraa (dakshinamarga,chathasro mathra,varthikamarge dwe mathre chithramarge) kalaaprayogakramena

Sl 174 *chithram chaikakale thaale vijneyaa geethirmaaghadhi
Varthikee dwikale gneyaa geethi ,sambavithaa budhai:*

According to dakshinamarga (the path of the south /right) the songs are prithula .According to Vaarthikamarga it is sambhavitha .According to Chithramarga is Magadhi .It depends upon the time units one employ .(thaalavritha).Both in Chithra path and in

Ekakala (single unit) rhythms one is using magadhi only. In varthika path and in two units of time it is sambavitha.

Sl 175 *dakshine prithulaa geethisthaale gneyaa chathushkale*

Anenaiva vidhaanena gaathavyaa geethayo budhai:

In dakshina path and in the units of 4 (chathushkaala) prithula is used .From this description one has to cognize the methods and use them judiciously .

Anuchedam 105

Chithre chaikakala evaa thaalo dwimathraprayogaath

Vaarthike dwikala eva thaalachathurmaathrika prayogaath

Dakshine chathushkale eva thaalolashtamaathrikaprayogaath

Sl 176 *duigururduinivritthaa cha chithre geethisthu maagadhi*

Laghupluthakrithaa chaiva thadardhe chaardhamaagadhi

In chithra path, rhythm is in single unit of time with 2 maathra. In varthika it is with 2 time units. In dakshina path it is with 4 time units. It has 8 maathra .

Chithramarga is called maagadhi. 2 Guru and one laghu , and 3 plutha are in it .Its ½ is ardhamaagadhi .

Commentary:

One guru is 8 units or 2 chathurasralaghu . Represented as a figure of eight 8 . One laghu is represented as one beat , and a count of fingers which can be either 3, 4, 5, 7, or 9 according to the rhythm which you are using . One plutham is 12 units of time represented by a figure with a combined drutham (a zero) and anudrutham above it (a u shape/1/2 of a circle/zero) and this is read as Rishi/Ri symbol in India . For Rhythm . (As in Rgveda). That is Magadhi is using this Chithramarga of the rhythms /instrumentalists . ½ of magadhi is ardhamaagadhi . These were sung by Vaithalika/Magadhi/sutha to wake up and put to sleep kings/royalty and citizens in ancient India .

Sl 177 *Sambavithaa guruvritthou ,prithula ,dakshine laghu*

According to the path ,sambavitha is in Guru . In dakshinamarga ,prithula is in Laghu .

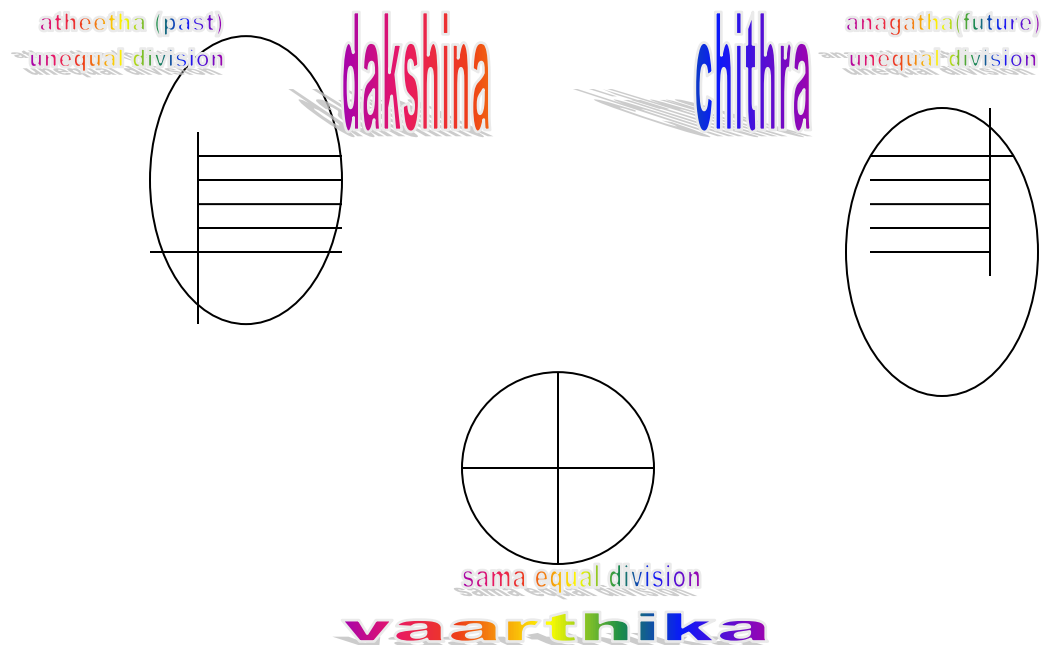
Anucheda 106

Varthikam samagraho dakshine atheetha:anaagatah:

In varthika the equalized method is used. In the dakshinamarga is the atheetha (the past methods) where first we take a Graha and then elaborate to others . In Chithra path we take the future (anagatha) and graham comes later .

Commentary

Graham is that swara which we take as adharasruthi .



Any of these can be taken in music and in a astronomical prediction .All combined make the system perfect .The past and present have to determine the future outcome/prediction is only a logical fact .So too in the rendering of a song .

Anuchedam 107 *Maathraa prayogaa maargaanaam hi kathithaa:*

Yathaa-dakshino vrithischithra ithi

Maathraa ashtou chathurdwe kramena yathaa

Sl 178 dhruvakaa sarpinee krishnaa varthinyathaa visarjithaa

Vikshipthaa cha pathaakaa cha pathithaa chaashtamee smrithaa

It is said about use of mathra in different paths .Those paths are dakshina,vrithi,and chithra.The mathra used in them in order are 8,4 and 2 (8 for dakshina,4 for chithra and 2 for vrithi/varthika) .The 8 mathra are named as follows

Dhruvaka

Sarpini

Krishna

varthini

Visarjitha

Vikshiptha

Pathaaka

Pathitha

Sl 178 thathra druvaasasabdaasyad sarpini vaamagaa bhaveth

Krishnaa dakshinatho yaathaa varthini chaapyadhogathaa

Sl 180 Visarjithaa bahiryaathaa vikshipthaa kunchithaa bhaveth

Pathaakaa chordhuagaa gneyaa pathithaa bhoomigaa bhaveth

Among the maathra ,Dhruva is with sound(sabda).Sarpini is that which starts from the left side of the user/singer.Krishna starts from the right side .Varthini is that goes downwards.Visarjitha is that comes from within the user/singer and is thrown out to exterior.Vikshiptha has a retrograde movement.Pathaka is that goes upwards,.Pathitha is that goes downwards to earth .

Commentary: These are 8 movements related to the singer /observer .

We can take Dhruva as the sound that is the axis or mooladhara that is fixed and thus representing the singer/observer .Then the sushumna within merudanda is the central dhruva . To the left is sarpini and right is Krishna (represents the ida/pingala) .Then the movements of praana or life enrgy is down,up,from in to out and in reverse order . That which goes beyond head as athithara is the flag or pathaaka while that which goes down below earth level is the pathitha sound/life energy/winds .

Sl 181 *Dhruvakaa sarpini chithre varthikaa cha parelapi dwe*

Krishnaa padmini naamnyascha dakshinelashtou smrithaala maathraa.

In chithra path is dhruvaka and sarpini used. In varthikamarga is Krishna and padmini used

Anuchedam 108

Dakshinavrithischithrehi vrithayo geethobhayavadyapradhaanya

Vasaath pratheethaa:geethapradhaanaa daksinaa vrithi:ubhayapradhaanaa

Vrithirvrithi:vadyapradhaanaa chithraavrithi :

The 3 functions(vrithi) formed due to the vocal and the instrumental use are dakshina,vriti and chithra due to the subject of feeling(pratheethi).When geetham is given more importance (vocal) it is Dakshina or south Indian type.If Vadya(instrument) is given more importance it is Chithra . When both are equally combined it is Vaarthika .

commentary: Thus an equalized vrithi used by the Vaisya communities who were most adept in music was having Padmini (the best type of women according to Kaamasasthra) and Krishna(the most perfect dark male in India) for best music and best dance .The name given to all Kerala women during sangam age as Pathuman devi is noteworthy here

Anuchedam 109 *idaneem pradhanyam gnappayathi paanikritham vivarthitham thaduktham*

Thaalageethilayayathi margapradhanyasaam

Yathaaswam vyanjakaani bhavanthi chithre samaaa yathi:

Drutho laya: uparipaani:maagadhi geethi

Rodholavayava: varthike srothogathaa yathirmadhyo laya:

Samapaani sambhavithaa geethiranugatham chaavayava:

Thadwaddhakshine gopuchaa yathirvilambitho laya:

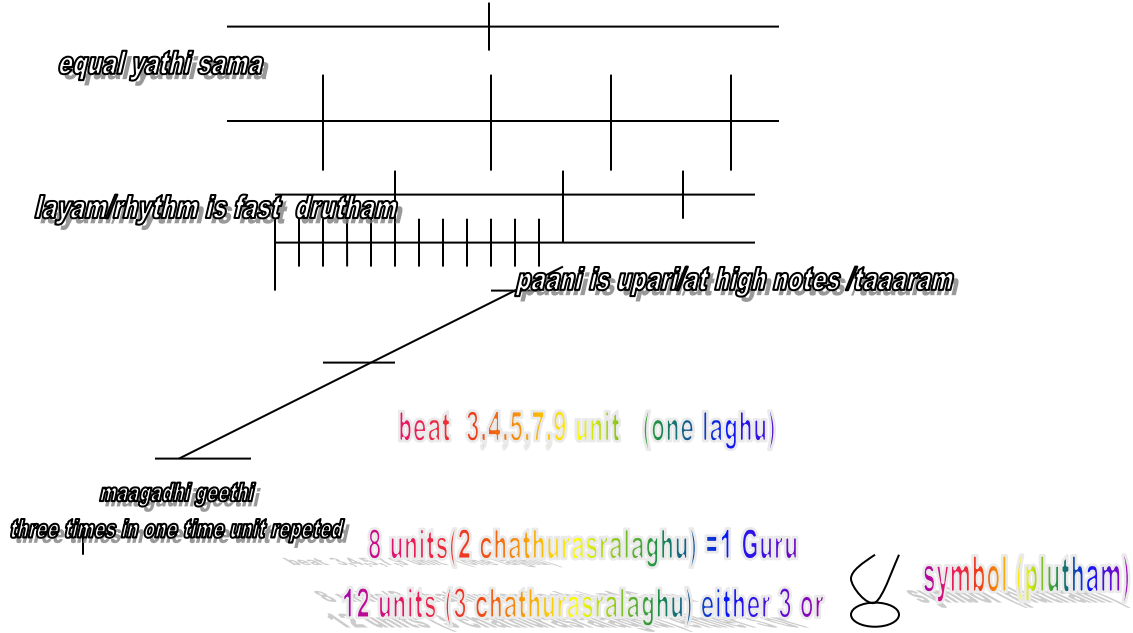
Avapaani:prithulaa geethisthathwam chaavayava:

Now about the difference in the paani(methods) in each due to their paths is said: In vrithi,thaalam(rhythm) geethi(song) layam (merging) yathi(stops) and marga(paths) are the vyanjaka(manifesting facts).In chithra path, yathi is sama ,and laya is drutha,and paani is upari(above) and geethi is magadhi and ogham(an association or organs/avayava) is seen .

In varthika path srothogathayathi, Madhya layam.sama paani,sambavitha geethi and avayava are anugatha .(following ones).In the expansile laya they are avapaani(below) and in Prithulageethi it is thathwa(principle).

Commentary :chithra path

:



Anuchedam 110

Vritheenaam cha vadyam samaanaagathatheetha grahai:

Karyam thathra.chithraayaam anagatho graham:

Vrithou samagraha:dakshinaayaam chaatheethagrahai :geethaprayogasyaadou

Kalaa chathushtaye vadya grahayoga uparipaaniiruchyathe.

Geethaprayogasya samamabheeshnam

Vaa vadya grahayoga:samapaaniiruchyathe

Thathra dakshinaayam maagadhee naama

Geethirvipareethayojanayaa drisyathe

Thadyathaa dakshine marge pravarithaa

Gathiridyaa chithre prayujyathe thadaa prithulaa

Geethirmagadheetyuchyathe vrithou vrithimarge

Cha pravarithaa geethiryadaa chithre prayujyathe

Yaavad dakshine vaarthike cha chithre marge prayujyathe

Aavaapaadi kramenaashtadhaa chathurdhaa dwidhaa chethi

Instruments have to be used in sama(equal) atheetha and anagatha graham as the first sruthi.swara.In chithra function both atheetha and anagatha(past and future) are combined

.(So that it is not an equal circle but is elliptical) In varthika we take as a sama or equal circle .In dakshinavrithi it is athhetha(past) .When one combines both vocal geetha and the instrumental music,one has to do it in all the 4 time cycles.Before we start the song ,the uparipani is taken .After that ,after starting the song,and then the instruments also started,when they are united ,use a samapaani(equalized one) and then finish in all the 4 time cycles and then do alaapa of geetha.This is called the Addapaani (Addathaala) . In dakshina functions we can see the reverse use of Magadhi .If a geethi is begun in dakshina path ,it is path of chithra .For prithula geethi the vrithi or repetition is Magadhi .To use a geetham in the path of vrithi ,if it is in chithra path it becomes the sambhavitha geethi and there will be two doublings (2 repetitions of the cycle)
Dakshina,varthika,chithra are the 3 types of use /paths.The use of kala or unit is in shanmukha(6 faces) chathurmukha(4 faces) dwimukha(2 faces) etc with 8 unit,4 unit and 2 units in each .

Anucheda 111 Evamuktham bhavathi chithre cha dwimathraa kalaa

Thadgathaa cha maagadhi

Saiva magadhi geethi: yadaa sambhavithayaa geetyaa

Prayujyathe thadaa chathurmathraka vrithi

Marga sabdenochyathe .Yadaa thu vrithimargathaa

Sambavithaa sabdavachyaa maagadhee geethi :

Dwigunithaa ashtamaathaa bhavathi thadaa

Prithulaa sabdavachyaa dakshinamarge bhavathi

It is said thus: In chithra path the kala are with 2 units united each.Magadhi is in this path .The very same magadhi geethi,if used along with sambavitha geethi it is called Vrithimarga .Its 4 mathra each will be there in each kala (unit).When magadhi gethiis in vrithimarga ,it is named as sambavitha .For it there are 8 maathra.Then it is called the prithula geethi of dakshinamarga .

Commentary: This clearly shows how the three functions evolved in subsequent stages from swaranthara (magadhi) and became the modern type of Karnataka music even before time of Bharatha and Matahngaa .

Thrishthir nivrithisthiraavrithirmaagadhi

Yadaa devam ithi padam geethwaa prathamaam kalaam nirvahya vilambithalayena

Yadaa dwitheeyam kalaam madhyamalayena

Devam ityenena padena sarvam ithi

Sahithena gaayathi ,thathraapi cha thritheeyaam

Kalaam druthalayena devam sarvam ithi

Padadwayena vande iti padantharasahithena

Nirvaahayatheethi kalaathrayena vyaapanam .Yathaa-

Maa	maa	saaa	saaa
(de		vam)
Maa	saaa	saaa	maaa
(de	vam	sa	rvam)
Sasa	masa	mama	riri
(devam	sarvam	vam	de)

It is because of the 3 repetitive cycles that magadhi is specially considered. There are 3 nivriti (coming back to original position 3 times) in magadhi .That is sung in Vilambitha time (slow) as Devam. The second time it is sung in a middle time with devam sarvam. The third time as speedy time with devam sarvam vande . Thus the three times (past, present and future as thrikaala) is used in Magadhi .

Anuchedam 112

*Magadhadesodbhavathwaan maagadhi , anye thu
Dwirnivritthaam maagadheem padanthi
Ardham ithi padasambandhyardhapadathwenaardhamaagadhi
Na cha padaardhanivritthaavartha:
Pravritthinivritthigo hethurmanthavya:
Yatha :saamavede geethapradhaane aavrithirshuartho
Naadriyatha ithi thaduktham-ya avrityaathmaa
Jaathavedasam ithi sabda:
Athra vedasabda paryavasithaa sambaavithaa
Laghu praayathwe cha prithulaa
Bhooyasthwwad padagraamasya prithulethyukthaa
Ithi margalayaa:*

The origin is from Magadha and hence called maagadhi. It is meant that which repeats twice . If only ½ of it it becomes ardhmagadhi .

When the meaning of a word is repeated the meaning may be affected. The cause , rule, evolution of word, its acceptance , its function, its forward movement and its end or rejection etc has to be known before it is used (rules of niruktha). In the musical saamaveda , when the song is sung and repeated for musical sake, this importance of meaning is sometimes neglected. The word Jaathavedasa is Agni or fire by meaning. It is repeated . In sambhavithageethi it becomes Jaathaveda (sam being not used for making the rhythm proper) . In Prithula song the laghu is given importance . A grama (gamut) is a association of words/swara etc. Since an association is used , it becomes naturally big (Prithula) and thus prithula means a use of association of graama . Thus Margalayam or merging of all the paths in one .

Anuchedam 113

*Margathraye geethividhou layaprayogou navadhaa drashtavya:
Layasamprayogam darsayathi –dakshina marga , varthiko
Maargaschithramargam ithi dakshina marga pravritthou layatharyam
Varthikamargaschithramargo dhruvamargaschethi
Vrithimargapravrittho layathrayam
Chithramargo dhruvamarga:
Soonyamargaschedi chithramargapravritthou layathrayam
Ithi geethyadhyaye prathipaaditahm yathaa
Dakshine chathware gurava: duou guru: eko guru:
Varthike dwa guru:eko guru: eko laghu:
Chithra eko guru:eko laghu :eko drutha:*

In the 3 paths of the songs , 9 types of laya (merging) happen.

In dakshina, varthika and chithra paths – pravritthi (function/creation)

In dakshina, varthika, chithra and dhruva are the layabheda of vrithimarga .
 Chithra, dhruva and anyamarga as layabheda of chithramarga
 In the chapter on Geethi this is described.
 As in dakshinamarga 4 guru, 1 guru,
 In varthikamarga 2 guru, 1 guru, 1 laghu
 In chithramarga 1 guru , 1 laghu , one drutham (one ½ mathra).

Commentary:

Dakshinamarga: 88 88 ; 8

Varthikamarga : 88; 8; 1 (followed by 3,4,5,7,9 units of time)

Chithramarga : 8; 88; 1 (followed by 3,4,5,7,9 units time); 0(drutham)

That is the use of dhruva, matya, rupaka, jhampa, thripata, ata, ekathaala and the 5 jaathilaghu of thisra (3 aksharakaala) chathurasra (4 khanda) 5) misra (7) and samkeerna (9) so that 35 rhythms were evolved before Mathanga's time and the birthplace of it is in magadha and the southern and central India . Began in Central East India (now called Bihar or Maghadha) and then evolved as a great system of saama music in entire south and east and western India and spread to north . Thus vedic saama chants of the central and south India the music evolved from the music of the central and south Indian tribes, the original inhabitants of India and the Brahmins are an evolved group of these aborigines and not someone who came from outside . Veda evolved in India by Indians . The original ethnic dwellers and spread to external world through Vaarthika (traders) guilds .

Sl 182 *dhruve soonyaad dwiguna: syaa chithre syad dwigune dhruvath*
Chithra dwigune vrithou thaddwiguno dakshine thadaa

In dhruva path the mathra in sunyamarga (empty space) also is doubled in the case of Chithra path . The double of chithra path is in Vrithi path. And double of that is in dakshina paths .

Sl 183 *ardhamathra kalaa anye ekamathraa dhruve bhaveth*
Dwimathraa syaad kalaa chithre chathurmathraa thu varthika:
 Sl 184 *ashtamathraa thu vidhubbhirdakshine samudaahridaa*
Ithi padageethaya:

In other paths the unit is in ½ mathra. In dhruva it is 1 mathra
 In chithra it is 2. In varthika it is 4. And in dakshina it is 8 and that is fixed by all scholars.

Commentary:

0; ½ ; 1; 2; 4; 8 is the series thus used . See that the sreni or series starts with 0 and includes fractions . This is seen in Indus valley and Harapan weights and measures and there is no reason to bring Mathanga to a later age . The knowledge was there from BC 3500 at least . So why Brihaddesi is considered as a Buddhist / Postbuddhist work has to be reconsidered . Writing a book / or an electronic media record happens only that particular technology develops. But knowledge/cognition/human consciousness is very ancient to that and for

India the recorded archeological evidence for this measures is available from Mehrgarh period onwards .

During Bharatha's time India had 4 major regions

- 1.Panchali
- 2.Oudramagadhi
- 3.Avanthi
- 4.Dakshinatya

Oudramagadhi is the Manipuri,Santhali folk dance and music,Bengal,Nepal(Videha) Magadha(Bihar/Pataliputhra area) Anga(Bagalpur,north part of Santhal pargana) pundra(Rangapura and northern Bangladesh) ,Malada(West Bengal)

Vanga(centralbengal/bengladesh)Pravanga(southwest Bengal/Bangladesh) anthargiri(Rajmahal hills of Bihar) bahirgiri(Beerbhum of west Bengal) mallavarthakam(Hazaribag,Govindpur,Bihar) Brahmothara or Sumhothara (from Murshidabad of W Bengal to Burma) Thamraliptha (a port on Hugli ,now lost) Bhargava (Sikkim and Bhutan) Prajyothisha(Kaamrup or Assam) Ulkalinga(NE Orissa)Oudra or Oudha (south of Ulkalinga ,the northernmost part of Mahendra mountains on eastern ghat ,and north o Mahanadi) Poulinda (Nagpur,Vidarbha and parts of South India) Praamgha (Mathanga ,Bangura in West Bengal and South India)Margava and Vatsa regions .

The Oudhramaagadhi style was a combination of Bharathi and Sathwathi .

Avanthi had a combination of Sathwathi of Oudramagadhi style and a Kaisiki of the dakshinatya style united .Avanthi is the west central zone.Starting from Aanartha northwest of Gujrat it extends down to west coast and central India malawa,Rajasthan,Mt Abu,Sourashtra,Sindhusouveera,Pakistan etc .Dakshinadesa or Dakshinatya is the kaisiki alone .Music is Kaisiki alone .

The magadhi of the oudramagadhi ,and kaisiki of dakshinatya and a combination of both as avanthivriti is seen as a continuous spectrum from south to central ,and west and east India .Dakshinatya included south of Mahanadi,between Nagpur (old capital of Vidarbha kundinapuri) and Orissa called dakshinakosalam,Andhrakam,Mousalam (masuliptnam of Andhra) Dravidam(entire dravida country) Mahavenna or Kannavenna(Parts of Krishna district and Maharashtra) Vanavasikam (from shimoga in karnataka to north Kerala) and the entire janapada was designated as Dakshinapatha even during Asoka's times .This was a single unit for millennia .

And according to Bharatahmuni 7 prakrith languages were used by people at his time.

- 1.Vahleekam or Bahleekam beyond Himalayas in Gandhara land
- 2.Soorseni in Mathura/UP
- 3.Avanthika in western India in which Kekaya(baluchistan) and haihaya (Mahishmathi at narmada mouth) are included and Pakistan too.
- 4.Magadhi in Bihar ,UP etc
- 5.Prachya in eastern India
- 6.Ardhamagadhi in SE Asia
- 7.Dakshinatya in South India .This language is Tamil,Malayalam,Telugu,Kannada etc at first simply designated as Dravida prakritha language and evolved as 4 languages later on.

The dialects o f his time were : Saakaaram(of the saaka people), abheera, chandaala, sabara, Dramida,Oudra and vanavasika only .

After Mathanga and Bharata several authors wrote on music and musicology .One among them was 17th century Akbar shaw .His Sringararasamanjari deals with the kaisiki vrithi mainly.It is interesting that he starts his book with a prayer to Ganapathi and Saraswathi . In 17th century the religious separatism was not as great as the modern 21st century world .Seeing art and culture as art and culture ,and not as religion needs wisdom .